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FIVE YEAR EXPERIENCE WITH RADIOACTIVE IODINE IN TREATMENT OF HYPERTHYROIDISM

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Since Hertz and Roberts,[1] and Hamilton and Lawrence [2] reported in 1942 on the first patients with thyrotoxicosis treated with radioactive iodine, successful remissions have been obtained in a large number of patients with hyperthyroidism using this isotope. The results of treatment have established a definite place for radioactive iodine (I^{131}) in the treatment of selected cases. At present over 130 hospitals and clinics [3] are using I^{131} for such cases. During the past five years we have had an opportunity to institute therapy in approximately 500 cases of primary or secondary hyperthyroidism. The purpose of this paper is to report our experiences in the management of 384 patients who have been followed for a period of from 6 months to approximately 60 months and whose therapy has been completed.

SELECTION OF PATIENTS

There are some differences among groups of investigators who are using radioactive iodine in the treatment of thyrotoxicosis concerning the criteria for selection of patients for this type of therapy. In the early stages of our program this treatment was usually reserved for persons over 40 years of age, because the possibility of later neoplastic change seemed to be an important deterrent to its use in young patients. As our experience in the use of radioiodine increased, we tended toward leniency in adhering to this age limit. Patients from 11 to 84 years of age have been treated when there was sufficient indication. In all of the patients whom we have treated one or more of the following criteria, which we have established as indications for therapy, have been met: (1) uncomplicated hyperthyroidism in patients over 40 years of age; (2) recurrent or persistent hyperthyroidism after thyroidectomy; (3) hyperthyroidism with severe cardiovascular disease or some other concurrent disease; (4) failure to respond properly to antithyroid drugs; (5) refusal of surgical or other therapy; and (6) presence of severe exophthalmos.

We believe that the coexistence of hyperthyroidism and pregnancy is an absolute contraindication for radioactive iodine therapy. Caution should be exerted in treating patients with hyperthyroidism and solitary nodules because of the high incidence of carcinoma associated with such lesions.

METHOD OF TREATMENT

In all of the cases the diagnosis was established on the basis of clinical judgment, basal metabolic rate, radioiodine diagnostic studies (conversion ratio and/or uptake by the thyroid), and protein-bound iodine determination. In some of the cases of classical hyperthyroidism, diagnostic studies were not done prior to therapy.

One of the chief problems involved in the treatment of hyperthyroidism with radioactive iodine is the determination of a suitable dose. Many methods have been reported for estimating the minimum effective dose, but to date none have been entirely reliable. It is extremely difficult to predict accurately the amount of radiation that any given area of thyroid tissue will receive, nor can anyone ascertain how uniformly the thyroid will pick up radioactive iodine. Since most of the methods that have been used to determine dosage do not seem to increase greatly the accuracy of determining the minimum effective dose and since many of them are quite time consuming, we have continued to base our dosage on the estimated weight of the gland, type of the gland, and age of the patient.

At the present time a dose of 150 mc. (new Oak Ridge standard) per estimated gram of thyroid tissue is given

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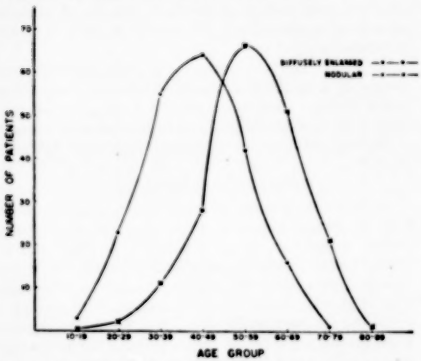
This investigation was aided in part by the Charles H. and Mary F. S. Worcester Memorial Fund; by an institutional grant from the American Cancer Society; and by a research grant from the National Cancer Institute, United States Public Health Service.

1. Hertz, S., and Roberts, A.: Application of Radioactive Iodine in Therapy of Graves' Disease, J. Clin. Investigation **21**: 624 (Sept.) 1942.
2. Hamilton, J. G., and Lawrence, J. H.: Recent Clinical Developments in the Therapeutic Application of Radiophosphorus and Radioiodine, J. Clin. Investigation **21**: 624 (Sept.) 1942.
3. Isotopes: A Five-Year Summary of U. S Distribution, United States Atomic Energy Commisison, August, 1951, p. 11.

as an initial dose in patients under 40 years of age with diffusely enlarged glands, and approximately 250 mc. in patients over 40 years of age. In patients with nodular glands, from 300 to 350 mc. per estimated gram of thyroid tissue are given as an initial dose.

In patients who have been pretreated with iodine and/or antithyroid drugs and are mildly hyperthyroid or euthyroid, therapy is usually deferred for four weeks following discontinuance of the drug therapy. If the thyrotoxicosis is moderate or severe despite previous treatment and it is determined that the avidity of the gland for I^{131} is not significantly decreased, therapy is instituted after a shorter interval of time.

After a therapeutic dose of I^{131} is given, the patients are followed at approximately two month intervals until a euthyroid status is achieved. If the initial dose is inadequate, additional radioiodine is given in doses commensurate with the severity of the persisting toxicosis. None of the patients who have remained euthyroid for four months have had a recurrence to date.



Age distribution of patients according to type of gland.

The clinical response to I^{131} alone seems to be slower than when iodine (I^{127}) or antithyroid drugs are given concurrently. Therefore, a few patients with severe hyperthyroidism have received iodine and antithyroid drugs beginning three to five days after the administration of I^{131} in order to bring the thyrotoxicosis under control as quickly as possible. Administration of the drugs has been continued until the hyperthyroidism has been controlled, and then gradually discontinued. Such patients are followed at frequent intervals, and if the signs and symptoms of thyrotoxicosis reappear, more radioiodine is given.

A satisfactory remission is ascertained by clinical judgment, basal metabolic rate, and in many cases by radioiodine diagnostic studies and protein-bound iodine determinations. Almost all of the patients are treated on an ambulatory basis and are encouraged to continue their normal activity unless the severity of the thyrotoxicosis or complications associated with an overactive thyroid do not permit.

4. Moe, R. H., and others: An Evaluation of Radioactive Iodine in the Treatment of Hyperthyroidism, J. Clin. Endocrinol. 10: 1022 (Sept.) 1950.

OBSERVATIONS

Since the summer of 1947 therapy has been completed in 384 patients, including 100 previously reported on.[4] These have been followed for a period of from six months to approximately 60 months. Among this group were 294 women and 90 men. Table 1 shows the type and estimated weight of the thyroid glands in the various age groups. The glands were diffusely enlarged in 204 of the patients and nodular in 180 patients. It will be noted that 290 of the patients, or 75.5%, were over 40 years of age; 66 patients, or 17.2%, were in the 30 to 39 year age group; while only 28, or 7.3%, were less than 30 years of age.

TABLE 1.—*Type and Estimated Weight of Glands in Various Age Groups*

Age Group, Yr.	Diffusely Enlarged			Nodular		
	No. of Patients	Range, Gm.	Average, Gm.	No. of Patients	Range, Gm.	Average, Gm.
10-19	3	50- 75	60	0	..	....
20-29	23	20-200	62.4	2	60	60
30-39	55	20-250	51.8	11	30-125	49.5
40-49	64	20-150	44.3	28	30-350	61.3
50-59	42	20- 70	34.8	66	30-275	63.3
60-69	16	25- 75	42.8	51	30-150	55.6
70-79	1	30	30	21	30-180	76.4
80-89	0	..	....	1	90	90
Over all	204	20-250	46.4	180	30-350	61.7

The size of the gland was quite variable in each age group. In some of the patients, particularly those who had had previous thyroidectomies, the thyroid gland was not palpable. In such cases the gland was estimated to weigh approximately 20 gm. As was expected, the highest incidence of toxic nodular goiters was in patients over 50 years of age. The diffusely enlarged glands in patients in the older age groups were on an average much smaller than those in the younger age groups, and were considerably smaller than in patients of comparable age who had nodular glands. The age distribution according to gland type is graphically shown in the chart. The curves are similar and are separated by a 10 year period.

Most of the patients had one or more kinds of therapy prior to receiving I^{131}, as shown in the following tabulation. Of the 94 patients who had one or more previous thyroidectomies, 24 were under 40 years of age. Similarly, of the 98 patients who had no previous therapy, 20 were under 40 years of age. All of the later group either refused surgery or had some concurrent disease that made I^{131} the treatment of choice.

Surgery	94
Lugol's (strong iodine) solution	181
Antithyroid drugs	191
X-ray treatment	14
Other treatment	5
No treatment	98

The dosage range and the average total dose is shown in table 2. In patients with diffusely enlarged glands, the total dosage ranged from 1.8 to 59.6 mc. with an average of 11.3 mc. The patients with nodular glands required an average of 20.5 mc. to effect a remission, with a range of 3.0 to 140 mc. Patients in the older age groups with nodular goiters were given on an average more I^{131} than those in the younger age groups. The number of doses of I^{131} required to control the hyperthyroidism adequately

is shown in table 3. Remissions were obtained in 76.1% of the patients with one or two doses. The remainder required from 3 to 7 doses, except for one patient who received 10.

The present status and the duration of the follow-up period of the 384 patients are shown in table 4. Satisfactory remission was obtained in 327, or 85.2%, of the patients, while varying degrees of hypothyroidism developed in 53 patients, or 13.8%. Only four persons, or 1.0%, have apparently permanent myxedema.

TABLE 2.—*Dosage Range and Average Total Dosage*

Age Group, Yr.	Diffuse			Nodular		
	No. of Patients	Range, Mc.	Average, Mc.	No. of Patients	Range, Mc.	Average, Mc.
10-19	3	6.5-11.3	8.5	0	..	....
20-29	23	1.8-40.6	11.2	2	6.0- 19.7	12.9
30-39	55	2.0-59.6	9.9	11	3.0- 39.5	16.3
40-49	64	1.9-58.9	12.2	28	3.8-140.0	19.5
50-59	42	3.0-40.2	10.5	66	3.0- 86.4	19.0
60-69	16	3.0-45.0	14.0	51	6.0- 59.2	22.0
70-79	1	38.9	38.9	21	4.2- 76.6	25.7
80-89	0	..	....	1	30.0	30.0
All patients	204	1.8-59.6	11.3	180	3.0-140.0	20.5
Percentage of Total	53.2%			46.8%		

who did not have exophthalmos at the time of therapy mild to moderate unilateral exophthalmos developed 6 weeks, 11 months, and 17 months after radioiodine administration. Two of these have improved following the administration of thyroid extract. The third case is too recent to evaluate thyroid therapy.

Other than the instances of hypothyroidism and postherapeutic unilateral exophthalmos, no complications resulting from the administration of radioactive iodine have been observed. A few patients have noted some tenderness in the region of the thyroid gland for a short period following therapy. There has been no radiation sickness and no evidence of bone marrow depression or injury to the parathyroids or kidneys. Menstrual abnormalities have not been observed. Several of the patients subsequently became pregnant and delivered healthy children.

Eight patients in this series have died. The causes of death did not seem to be related to the radioactive iodine therapy. Two died from carcinoma (kidney and bladder), three from myocardial infarctions, and the remaining three from a ruptured aneurysm, a saddle embolus, and a pulmonary embolus.

TABLE 3.—*Number of Doses of I^{131} Required to Control Hyperthyroidism*

Age Group, Yr.	No. of Doses and Gland Type*														No. of Patients	
	1		2		3		4		5		6		7		10			
	Diff.	Nod.	Diff.	Nod.	Diff.	Nod.	Diff.	Nod.	Diff.	Nod.	Diff.	Nod.	Diff.	Nod.	Diff.	Nod.	Diff.	Nod.
10-19	3	0	0	0	0	0	0	0	0	0	0	0	0	0	..	..	3	..
20-29	17	1	3	0	0	1	2	0	0	0	0	0	1	0	..	..	23	2
30-39	37	3	8	6	6	0	2	0	2	0	0	0	0	2	..	..	55	11
40-49	33	14	16	8	9	1	3	2	1	2	1	0	1	1	..	..	64	28
50-59	15	22	13	18	12	8	0	2	1	3	1	2	0	0	0	1	42	66
60-69	7	18	5	29	2	8	1	4	1	1	0	0	0	0	..	..	16	51
70-79	0	9	0	5	0	3	1	3	0	0	0	1	0	0	..	..	1	21
80-89	0	0	0	1	0	0	0	0	0*	0	0	0	0	0	..	..	0	1
Totals	112	77	45	58	29	21	9	11	5	6	2	3	2	3	0	1	204	180
Percentage of Total	49.3		20.8		13.0		5.2		2.8		1.3		1.3		0.3		100.0	

* Diff. represents diffusely enlarged glands, and Nod. represents nodular glands.

All of the patients reported on have been followed for at least six months after the establishment of a euthyroid state; 329, or approximately 86%, have been followed for a year or longer. No recurrence has been observed to date.

All of the diffusely enlarged glands decreased markedly in size, and many of them are no longer palpable. Nodular goiters showed some tendency to become smaller. Many of them, particularly in the older age groups, did not change demonstrably. In a few cases solitary nodules disappeared completely to external palpation following I^{131} therapy.

Exophthalmos of varying degree was observed in 114 cases. We did not observe any increase in the exophthalmos in any patient who had proptosis prior to radioiodine therapy. We were unable to evaluate 20 patients adequately. These were being followed elsewhere, and we were unable to determine whether the exophthalmos had improved or remained stationary. Of the 94 patients who were adequately evaluated, 18, or 19.1%, had complete regression; 55, or 58.5%, showed varying degrees of improvement; and in 18 it was thought that the degree of exophthalmos remained the same. In three patients

TABLE 4.—*Length of Follow-Up and Therapeutic Result*

Follow-Up, Mo.	Result				No. of Patients
	Euthyroid	Hypothyroid	Myxedema	Recurrence	
6-11	47	7	1	0	55
12-17	45	9	1	0	55
18-23	54	9	1	0	64
24-29	53	8	..	0	61
30-35	48	7	..	0	55
36-41	42	5	1	0	48
42-47	22	4	..	0	26
48-53	11	1	..	0	12
Over 54	5	3	..	0	8
Total	327	53	4	0	384
Percentage of Total	85.2	13.8	1.0	0	100.0

COMMENT

Approximately 12 years have elapsed since Hertz and Roberts and Hamilton and Lawrence first administered radioactive iodine to a human. To date, there has been no report of any adverse radiation effects developing in any of the patients who have received radioactive iodine for treatment of hyperthyroidism. Since it will take many years to evaluate fully any possible long-range harmful effects of internal beta radiation on the thyroid or other

tissues, we advocate surgery as the treatment of choice in patients under 40 years of age with uncomplicated primary or secondary hyperthyroidism.

Several of the patients in this series had solitary nodules. In a few the nodules disappeared as the hyperthyroidism was controlled. We have considered these as representing hyperfunctioning adenomas and have not advised subsequent surgery. In the cases in which the solitary nodule persisted after establishment of euthyroidism, surgery was strongly recommended.

In all of the patients except those with classical thyrotoxicosis, radioiodine diagnostic studies (conversion ratio and/or uptake by the thyroid) and protein-bound iodine determination were done. Since the basal metabolic rate is elevated in many conditions other than thyrotoxicosis, such determinations should be made in doubtful cases before therapy with radioiodine. Many patients have an elevated basal metabolic rate and some signs and symptoms suggestive of hyperthyroidism who do not have thyrotoxicosis and obviously should not be treated. Since it is relatively easy to administer radioiodine, such patients are more likely to be treated than they would if they were to undergo surgery. Perhaps some

TABLE 5.—*Millicuries of I^{131} per Gram of Estimated Thyroid Weight*

Age Group, Yr.	Type of Gland	
	Diffuse	Nodular
10-19	0.14	....
20-29	0.18	0.32
30-39	0.19	0.33
40-49	0.28	0.32
50-59	0.27	0.39
60-69	0.33	0.40
70-79	1.39	0.34
80-89	....	0.33
Over-all	0.24	0.33

of the failures with radioiodine reported in the literature were not cases of true hyperthyroidism. Every patient with real hyperthyroidism should respond if an adequate amount of radioactive iodine is administered.

When we first started our program, we attempted to give an initial dose in the diffusely enlarged glands, so that approximately 0.1 mc. was given for each gram of thyroid tissue believed present. In the nodular goiters, a slightly greater dose was given. With increased experience, we found that this dosage regimen was not adequate. As shown in table 5, the average dose in the patients with diffusely enlarged glands was 0.24 mc. per gram of estimated thyroid weight. In the patients with nodular glands, approximately 0.33 mc. of radioiodine per gram of estimated thyroid weight was given. Our present dose is based on the averages shown in table 5.

We have had a considerable number of patients who have been brought to a euthyroid state, where they have remained for approximately two months. Subsequently, signs and symptoms of thyrotoxicosis have developed. We have not considered such cases as representing instances of recurrence but rather cases in which treatment was inadequate. Patients who have been observed to be euthyroid for four months have not shown any evidence of recurrence to date.

Of the three patients treated who were under 20 years of age, two were 12 years of age. One of these had had surgical treatment previously, and both the parents and the patient did not desire a second operation. The other child had severe rheumatic heart disease. The third patient was 16 years of age, and both she and her parents refused surgery.

In 53 patients, or 13.8%, hypothyroidism of varying degrees developed. In many of these cases the hypothyroidism is extremely mild, and the patients are receiving very small doses of thyroid extract. Some of our patients have shown a transitory hypothyroidism, which lasted from a few months to a year or more. It is possible that many of the patients, particularly those with a mild hypothyroidism, may still return to a euthyroid state and require no medication. Some of the patients were purposely made to have a low metabolic rate in an attempt to improve their cardiac status. Crile [5] has stated that persons with mild hyperthyroidism are more likely to develop hypothyroidism. The 53 patients in our series in whom hypothyroidism developed were about equally divided as to the presence of mild, moderate, or severe hyperthyroidism before therapy. We do not feel that the incidence of hypometabolism precludes the use of radioactive iodine in the treatment of thyrotoxicosis in selected cases, and is comparable to that observed following surgery.

SUMMARY AND CONCLUSION

Our experiences in the treatment of hyperthyroidism with radioactive iodine in 384 cases with follow-up for from 6 months to approximately 60 months are described. The selection of patients for therapy and the method of treatment are discussed. Two hundred and four patients had toxic, diffusely enlarged glands, and 180 patients had toxic nodular glands. Approximately 75% of the patients were over 40 years of age.

About twice as much I^{131} was required to effect a remission in patients with nodular glands as in patients with diffusely enlarged glands. Remissions were obtained in 76.1% of the patients with one or two doses. The remainder, except for one case, required from three to seven doses. A satisfactory remission was obtained in 85.2% of the patients, while 13.8% developed varying degrees of hypothyroidism. Only 1.0% have permanent myxedema. No recurrences have been observed to date.

Exophthalmos was observed in 114 cases. Of the 94 patients who were adequately evaluated, 19.1% had complete regression and 58.5% showed varying degrees of improvement. No progression was observed in any case in which exophthalmos had been present prior to radioiodine therapy. In three cases post-therapeutic unilateral exophthalmos developed. Other than hypothyroidism and three cases of post-therapeutic unilateral exophthalmos, no complications of radioiodine therapy have been observed to date. Eight patients in this series have died. The causes of death did not seem to be related to the radioiodine therapy. The observations warrant the conclusion that administration of radioactive iodine is an acceptable method of therapy for selected cases of hyperthyroidism.

950 E. 59th St. (Dr. Clark).

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CORTISONE AND CORTICOTROPIN IN RHEUMATIC FEVER AND JUVENILE RHEUMATOID ARTHRITIS

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To evaluate properly the effects of cortisone on rheumatic fever, it is necessary to divide the many different manifestations of the disease into two categories (table 1). In the first group should be included the systemic or nonspecific clinical and laboratory features of the disease. The second group would comprise manifestations characteristic of rheumatic fever.

NONSPECIFIC CHARACTERISTICS OF RHEUMATIC FEVER

The nonspecific manifestations of rheumatic fever are increased temperature and heart rate, "toxicity," loss of appetite, anemia, elevated erythrocyte sedimentation rate, increased concentration of serum fibrinogen and globulin levels, and the appearance of C-reactive protein (CRP) in the blood. All these nonspecific changes return or tend to return to normal with the administration of cortisone. Most dramatic of these is the prompt subsidence of fever and the toxicity seen in severe cases of rheumatic fever. Another effect is reduction in the sedimentation rate. Of the various constituents of the blood that govern the sedimentation rate, the concentration of fibrinogen in the plasma is believed to be the most important in acute diseases. In our patients we observed a close correlation between the fall in the fibrinogen level and the decrease in the sedimentation rate following the administration of adrenal cortical hormones. Fearnley and Bunim [1] determined the effect of corticotropin on the plasma fibrinogen of normal persons and found that a single intramuscular injection of the hormone was followed by a significant fall in the fibrinogen level in four of seven persons who were studied. The presence of a normal erythrocyte sedimentation rate during treatment with corticotropin or cortisone should not be interpreted, therefore, as being indicative of the absence of rheumatic activity.

A more sensitive index of rheumatic activity than the sedimentation rate is a precipitin test for detecting the presence of a protein that appears in the patient's serum during rheumatic activity and disappears when the inflammatory process subsides.[2] Serums of all patients with acute rheumatic carditis in our series who were treated with cortisone or corticotropin were tested at frequent intervals for C-reactive protein before, during, and after hormone therapy. In all cases the test was strongly positive before treatment, and in all but one the reaction became negative within a week or two after therapy was begun, usually before the sedimentation rate reached normal. When, however, hormone administration was discontinued, the C-reactive protein usually reappeared, and when rheumatic activity continued, the positive reaction persisted. It is evident, then, that during administration of cortisone or corticotropin the disappearance of the C-reactive protein cannot be used as evidence that rheumatic activity has subsided.

SPECIFIC CHARACTERISTICS OF RHEUMATIC FEVER

The second category of clinical features, dealing with manifestations characteristic of rheumatic fever, may be further subdivided according to cardiac and extracardiac signs. The latter consist of polyarthritis, chorea, subcutaneous nodules, and certain cutaneous lesions, such as erythema marginatum. These signs vary in their response to cortisone, as shown in table 1. Unquestionably the most important signs by which to measure the real value of cortisone or corticotropin are those that reflect activity of the inflammatory process in the structures of the heart, i. e., pericarditis, myocarditis, and valvulitis, or those that indicate the presence of cardiac failure due to active carditis.

Pericarditis.—Pericarditis with or without effusion almost always subsides during cortisone administration, usually within five days. It is not certain, however, that this result is wholly attributable to the hormone, since it is well known that pericarditis often clears spontaneously. In one patient with advanced chronic heart disease, a loud extensive pericardial friction rub appeared and disappeared while the patient was receiving corticotropin in apparently adequate doses.

Myocarditis.—Myocarditis may be determined by an increase in heart rate, a change in the quality of heart sounds, the presence of cardiac dilatation, a gallop rhythm, electrocardiographic changes, or congestive heart failure. The heart rate at rest may be decreased to normal levels within 72 hours in acutely ill, febrile patients who receive adequate quantities of the hormone. The fall in the heart rate may be due in part to reduction of temperature, and, indeed, the drop is more striking when high grade fever is present before therapy than when low grade fever is present. That the hormone may however, have, a direct though nonspecific effect on the heart rate is suggested by the observation that in cases in which a moderate dose of cortisone is followed by defervescence but not by disappearance of tachycardia, an increase in the dose may be followed by reduction of the rate to normal.

In the absence of pericardial effusion, a decrease in the size of the heart was rarely observed in our patients dur-

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Read in the Symposium on the Present Status of Corticotropin, Cortisone, and Allied Substances in Pediatric Practice before the Section on Pediatrics at the 101st Annual Session of the American Medical Association, Chicago, June 10, 1952.

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2. Anderson, H. C., and McCarty, M.: Determination of C-reactive Protein in Blood as Measure of Activity of Disease Process in Acute Rheumatic Fever, Am. J. Med. **8**: 445 (April) 1950.

ing or soon after cortisone therapy, even when the enlargement was recent and signs of activity were suppressed. Congestive heart failure, when due to active rheumatic carditis of relatively short duration, often diminishes or disappears when cortisone or corticotropin is used. This effect does not usually occur in advanced cases in which there is chronically active carditis. Intensification of failure as a result of salt and water retention may occur but does not commonly supervene, provided the daily sodium chloride intake is restricted to 2 gm. throughout the treatment.

Valvulitis.—Valvulitis is diagnosed by inference; its recognition depends on the detection of changing murmurs. Slight changes observed during therapy are probably not significant. Furthermore, systolic and diastolic murmurs may appear and spontaneously disappear in untreated patients during the course of active rheumatic carditis.

ANALYSIS OF RHEUMATIC FEVER CASES

Thirty-one children with active rheumatic carditis were observed by our group at Bellevue Hospital (table 2). The first 18 patients were treated with cortisone or corticotropin or both, and the results obtained were published in a separate report.[3] The remaining 13 patients were included in a cooperative international study conducted under the auspices of the Rheumatic Fever Council of the American Heart Association. In this later group, the drug to be administered in an individual case was determined by random allocation. Of the 13 patients, 7 were given cortisone intramuscularly, 2 were given corticotropin, and 4 were given acetylsalicylic acid, each for a period of six weeks in conformity with a fixed dose schedule. It will be noted from table 2 that of the total group of 31 patients, 20 were treated during initial attacks and 11 during recurrent attacks. Ten patients, five in each group, had pericarditis. Definite signs of congestive heart failure were present in 8 of the 31 patients. Subcutaneous nodules were detected in five patients, all in their initial attacks.

One or more organic murmurs disappeared in 11 patients during therapy. In seven no evidence of organic heart disease was present on evaluation six or more months after treatment was discontinued; five had received hormones, and two had received acetylsalicylic acid. Although in some children who recovered without cardiac lesions, treatment was begun within the first 10 days of illness, in others, treatment was instituted in the fourth to sixth week of illness. These all had had mild or only moderate carditis. On the other hand, of a group of seven children in our series who started treatment with corticotropin or cortisone within the first two weeks of their initial attack of rheumatic fever, five maintained evidence of organic heart disease. In one-half of all the patients, manifestations of rheumatic activity returned within several days after therapy was discontinued and persisted for weeks or months. It was apparent that in these cases corticotropin, cortisone, or acetylsalicylic acid could not prevent organic heart disease or significantly diminish the duration of carditis.

Eight children in our series presented signs of congestive failure on admission. By chance, they all received hormone therapy. In five cases the failure cleared during treatment without the aid of digitalis or diuretics. Of the three who required either or both of these adjuvants, one, in retrospect, did not receive adequate amounts of hormone and did not adhere to a salt-poor diet. In only one patient, adequately treated with adrenal cortical hormone and a salt-poor diet, was it necessary to administer digitalis and meralluride (mercuhydrin*) to combat failure. This patient was 2½ years old and critically ill with severe carditis. In this and one other seriously ill patient in the group with congestive failure it was our impression that hormone therapy was a lifesaving measure. Subcutaneous nodules disappeared during hormone therapy in all five patients who had them. In some they were beginning to decrease in size and number before therapy was instituted. In others they seemed to resolve sooner than would otherwise be expected. In none of our patients did new nodules appear during therapy. The following case offered an unusual opportunity to compare the effects of cortisone with those of acetylsalicylic acid in the same patient.

TABLE 1.—*Effects of Cortisone and Corticotropin on Active Rheumatic Fever and Carditis*

Nonspecific	Antirheumatic: Positive	Antirheumatic: Questionable or Negative
Temperature falls	Polyarthritis subsides promptly	Pericarditis subsides (spontaneous or result of therapy?)
Heart rate decreases	Quality of heart sounds improves	Chronic myocarditis unaffected
Toxicity disappears	Gallop rhythm often disappears	Endocarditis unaffected? Murmurs suggesting organic heart disease usually persist even in patients treated early in first attack
Well-being develops	Heart rate usually decreases	Heart size unaffected
Appetite increases	Congestive heart failure improves*	Effect on chorea equivocal
Hemoglobin level rises	Subcutaneous nodules' disappearance probably accelerated	Erythema marginatum unaffected
Erythrocyte sedimentation rate, fibrinogen level, and gamma globulin level return or tend to return to normal, and C-reactive protein decreases in concentration or disappears	.....	.....

* Adjuvant therapy must include salt-free diet for this to occur.

REPORT OF A CASE

A 10-year-old boy had a severe, prolonged initial attack of rheumatic carditis. Sixteen days before admission he had pharyngitis and 12 days later complained of fever and arthralgia. On admission his temperature was 103.2 F, and a soft blowing apical systolic murmur was heard. The sedimentation rate was elevated, and the test for C-reactive protein was strongly positive. Within 48 hours, the murmur became harsh and well transmitted, a gallop rhythm appeared, and electrocardiographic changes indicative of pericarditis developed, although no friction rub was

3. Kuttner, A. G., and others: Effect of ACTH and Cortisone on Rheumatic Carditis, J. A. M. A. 148:628 (Feb. 23) 1952.

audible. Salicylate therapy was begun on the fourth hospital day. An apical mid-diastolic murmur appeared on the fourth day of therapy, and a pericardial friction rub appeared on the eighth day. By the 10th day after hospital admission, the antistreptolysin-O titer rose from 375 to 760 units per cubic centimeter of serum. As will be noted in figure 1, there was no reduction in the sedimentation rate and no disappearance of the C-reactive protein, despite the use of high doses of acetylsalicylic acid. Clinically there was slow and slight improvement. This therapy was discontinued after six weeks. The temperature then rose to 104.6 F, and a pericardial friction rub was again heard. The rhythm became totally irregular and was nodal in origin. The heart sounds were of distinctly poorer quality than at the beginning of therapy, and both systolic and diastolic apical murmurs became louder and harsher. The patient was critically ill. Five days after acetylsalicylic acid therapy was discontinued, therapy with orally administered cortisone was instituted, and striking improvement followed. The rhythm became regular, and the quality of heart sounds improved. Within 48 hours the pericardial friction rub disappeared. The sleeping pulse rate, which was 124 per minute the night before cortisone was first given, fell to 72 on the ninth day, and the temperature became normal. For the first time during the illness, the sedimentation rate and the test for C-reactive protein became normal. These laboratory changes were noted on the 14th day of cortisone therapy. When, however, reduction of cortisone dosage had reached 50 mg. daily, the temperature, pulse rate, and sedimentation rate increased, and the C-reactive protein reappeared in the serum. Upon restoring the daily dose from 50 to 100 mg. improvement was induced again. By the eighth week of cortisone therapy the apical diastolic murmur disappeared, and the heart sounds were no longer overactive. Cortisone was discontinued after 10 weeks. During the second and third weeks after hormone withdrawal, the sedimentation rate rose moderately, but the C-reactive protein test remained negative. Twenty-one days after cortisone was stopped, the temperature increased to 102.8 F, the pulse to 120 beats per minute, and the C-reactive protein test again became positive. The diastolic murmur did not reappear. Eight days later, the abnormal signs disappeared spontaneously, and the disease remained inactive. This evidently was an unusually delayed rebound phenomenon.

TABLE 2.—*Analysis of 31 Cases of Rheumatic Carditis*

Clinical Features	Initial Attack (20 Patients)	Recurrent Attacks (11 Patients)
Mean Age	6 yr.	11 yr.
Endocarditis and Myocarditis	20	11
Pericarditis	5	5
Congestive heart failure	7	1
Subcutaneous nodules	5	0
Therapy		
Hormone treated (6 weeks)	18	9
Acetylsalicylic acid treated (6 weeks)	2	2
Results		
Organic murmurs disappeared	7 (6H, 1A)*	4 (2H, 2A)
Recovery without organic heart disease	4 (3H, 1A)	3 (2H, 1A)
Rheumatic activity after therapy	10 (9H, 1A)	6 (6H)

* H = treated with hormones; A = treated with acetylsalicylic acid.

In this patient the superiority of cortisone over acetylsalicylic acid in its effect on the cardiac as well as the systemic manifestations is apparent (fig. 1). It should not be inferred, however, that the difference between the two drugs as illustrated by this single case is representative or would necessarily obtain in other cases similarly treated.

REBOUND PHENOMENON

In many patients with rheumatic fever, within a few days after withdrawal of corticotropin or cortisone, there is reappearance of fever, tachycardia, or other signs of rheumatic activity that were present before therapy was started. In other cases, clinical manifestations of the disease may not recur, but the sedimentation rate may rise or C-reactive protein may return. (These changes are not, as a rule, accompanied by a rise in the antistreptolysin-O titer.) Often both clinical and laboratory changes reappear. This is referred to as the rebound phenomenon, and it usually subsides within 20 days without reinstitution of hormone therapy, provided the natural course of the disease has ended.[4] Figure 2 graphically illustrates a case of clinical and laboratory rebound. To a six-year-old child in the 15th week of her first attack of rheumatic fever with severe carditis, three courses of hormone were administered. First, corticotropin was given intramuscularly for three days (June 19 to 21) in daily doses of 60 mg.

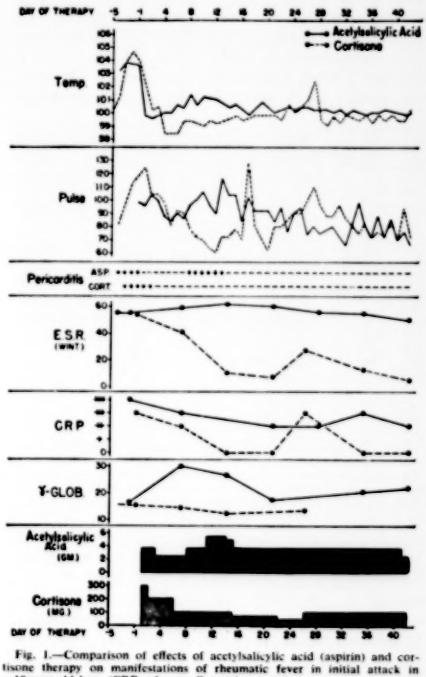

Fig. 1.—Comparison of effects of acetylsalicylic acid (aspirin) and cortisone therapy on manifestations of rheumatic fever in initial attack in a 10-year-old boy. (CRP refers to C-reactive protein.)

This was followed by cortisone given intramuscularly for the next 25 days in varying doses as indicated in figure 2. Treatment was interrupted for seven days (July 18 to 24), and corticotropin was again given, first in daily doses of 200 mg., then 300 mg., and later 160 mg. After 31 successive days of corticotropin therapy, the drug was withdrawn. As will be noted in figure 2, soon after the hormone was stopped, the temperature and the sedimentation rate rose and the C-reactive protein reappeared.

4. Ziegra, S. R., and Kuttner, A. G.: Reappearance of Abnormal Laboratory Findings in Rheumatic Patients Following Withdrawal of ACTH or Cortisone (with Special Reference to C-Reactive Protein), Am. J. M. Sc. **222**: 516 (Nov.) 1951.

Without further treatment, however, these clinical and laboratory changes returned to normal. It will be noted that the antistreptolysin-O titer was unaffected by either the administration or withdrawal of the hormone.

SELECTION OF SUITABLE CASES

In our present state of knowledge and experience with the disease it would appear that patients with rheumatic fever who have polyarthritis but no carditis need not be treated with cortisone or corticotropin. In such cases, salicylate is the drug of choice. Patients who have rheumatic heart disease that is inactive need not be given hormone therapy. Patients who have mild, active, chronic rheumatic carditis of many months' duration will benefit little from these agents. Adrenal cortical hormones are not indicated in cases of advanced heart disease and congestive heart failure in which failure has a mechanical basis and is not due mainly to active carditis. The cases most suitable for hormone therapy are those in which

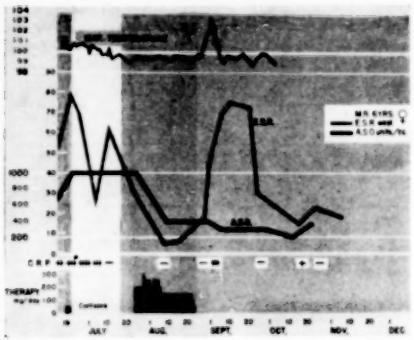

Fig. 2.—Course of 6-year-old girl with rheumatic fever, showing rebound phenomenon on withdrawal of hormone therapy. (CRP refers to C-reactive protein and A.S.O. refers to antistreptolysin-O titer.)

there is active and especially severe carditis of recent (less than three months) onset. The hormones are equally effective during an initial or recurrent attack of rheumatic fever. The presence of congestive heart failure is no contraindication to the use of cortisone, but close supervision is most important.

JUVENILE RHEUMATOID ARTHRITIS

About 3 to 5% of all cases of rheumatoid arthritis occur in childhood.[5] Cases of juvenile rheumatoid arthritis may be divided into two groups: those in which onset is accompanied by severe systemic reactions with visceral involvement and those in which signs are limited mainly to the joints. In the first group, there is usually, in addition to the polyarthritis, a high fluctuating fever that may persist for weeks, lymphadenopathy, splenomegaly, severe muscular wasting, demineralization of bone, leucocytosis, and anemia. Pericarditis or pleuritis may also occur, and in some patients amyloidosis develops as the disease advances. In the group whose principal changes are confined to the joints, there are usually milder inflammation of the articular structures, low grade fever, and slight, if any, visceral involvement. The natural course of this disease in 51 patients untreated by hormones was recently studied by Barkin at the Robert Breck Brigham Hospital.[6] The results of his study are summarized in table 3; the total observation period was from 1917 to 1952, the average period of observation of a single patient being 18.7 years. It should be borne in mind that most patients in Barkin's series were severely ill. Nevertheless, it should be recognized that juvenile rheumatoid arthritis may be a serious disease of many years' duration following a progressive course with severe exacerbations and not infrequently resulting in permanent disability, crippling, amyloidosis, or death.

TABLE 3.—*Course of Juvenile Rheumatoid Arthritis in 51 Patients Who Did Not Receive Hormone Therapy* [*]

Duration of disease 10 years or longer		22
Died [†]		11
Amyloid disease		8 [‡]
Severe systemic disease at onset		13
	Died	1 (8%)
	Bed and chair existence	6 (46%)
	Moderate functional capacity	5 (38%)
	Good functional capacity	1 (8%)
Milder cases at onset		38
	Died	10 (26%)
	Bed and chair existence	1 (3%)
	Moderate functional capacity	22 (57%)
	Good functional capacity	5 (13%)

[*] Average duration from onset to death, 13.5 years.
[†] 3 proved and 3 probable cases.

Cases of mild nature often respond satisfactorily to analgesics, rest, corrective exercises, physiotherapy, and adequate diet. Severer cases require chrysotherapy or hormone therapy. The former fails to produce improvement in a large proportion of cases and in many instances must be abandoned because of toxic effects. Cortisone or corticotropin therapy is commonly followed by relatively prompt and distinct initial improvement. Before embarking on a course of hormone therapy of undefined and unpredictable duration, however, the physician should analyze each case and determine which changes are reversible and which are irreversible. Such an analysis enables one to appraise better the results that may be achieved with the use of cortisone.[7] The following tabulation lists these changes:

Reversible or Reducible Changes	*Irreversible Changes*
Inflammation of synovialis	Erosion of cartilage
Restricted range of motion	Destruction of bone
Periarticular swelling	Severe contractures
Intra-articular effusion	Ankylosis
Bursal effusion	Subluxation
Subcutaneous nodules	Presence of agglutinins for hemolytic Streptococcus and sensitized sheep erythrocyte
Mild flexion contractures	
Muscle weakness and atrophy	
Iritis	
Psoriasis	
Weight loss	
Fever	
Elevated erythrocyte sedimentation rate	
Anemia	

5. Coss, J. A., Jr., and Boots, R. H.: Juvenile Rheumatoid Arthritis: Study of 56 Cases with Note on Skeletal Changes, J. Pediatrics **29**: 143 (Aug.) 1946.

6. Barkin, R. E.: Juvenile Rheumatoid Arthritis: Long-Term Follow-up, Proceedings of Annual Meeting of American Rheumatism Association, 1952, to be published.

7. Bunim, J. J.: Clinical Effects of Cortisone and ACTH on Rheumatic Diseases, Bull. New York Acad. Med. **27**: 75 (Feb.) 1951.

ANALYSIS OF RHEUMATOID ARTHRITIS CASES

From Aug. 1, 1949, to June 1, 1952, seven patients with juvenile rheumatoid arthritis were treated with cortisone (table 4). In several patients treatment was initiated with one or two courses of corticotropin and then continued with cortisone. The ages of onset varied from 4 to 9 years, and the duration of the arthritis before hormone therapy ranged from 10 days to 7 years. The arthritis was early (stage 1) in one patient, moderate (stage 2) in three, and advanced (stage 3) in the remaining three. In three patients (D. C., V. M., and A. S.) the onset was marked by high fever and other severe systemic manifestations. As of June 1, 1952, cortisone had been administered for an aggregate of 665 days to the patient receiving therapy for the longest period of time and for 85 days to the child whose treatment had been started most recently. Hormone administration was discontinued in two patients at the end of 11 and 15 months, respectively; in four patients it was being maintained at the time of writing, and one patient was no longer under our care after having received cortisone for 314 days. The seven years after onset. The arthritis and the muscular atrophy were advanced, destruction of cartilage and bone had already occurred, and deformities had developed. There was no improvement in the changes listed in table 4 as irreversible. The objective improvement in what may be considered the reversible changes was 75% in one boy (P. B.) and 25% in the other (T. T.). One became ambulatory after 2 months and the other after 24 months of hormone treatment; but both had to use either crutches or canes and therefore were regarded as semiambulatory.

The remaining two of the seven patients were ambulatory when treatment was instituted. One (V. F.) improved strikingly and had a clinical remission, although the sedimentation rate remained moderately elevated. At first she was given both cortisone and gold salts. Administration of the latter was discontinued after a total of 2.175 gm. had been injected over a period of 195 days. Cortisone was withdrawn after 223 days. There has been no relapse to date, 12 months after hormone therapy was discontinued. Although it is difficult to estimate how much gold compound contributed to the improvement,

TABLE 4.—*Results of Cortisone Therapy in Seven Patients with Juvenile Rheumatoid Arthritis*

Patient	D. C.	V. M.	A. S.	E. D.	P. B.*	V. F.†	T. T.
Age at onset (yr.)	4	9	5	9	6	6	7
Interval from onset to therapy	10 days	9 mo.	12 mo.	18 mo.	3 yr.	7 yr.	7 yr.
Stage of disease	I (early)	II (moderate)	II (moderate)	II (moderate)	III (advanced)	III (advanced)	III (advanced)
Average daily dose (mg.)	100	80	100	100	50	50	75
Duration therapy (days)	85*	385	406*	316*	665*	223	314
Functional state							
Before therapy	B-R‡	B-R	B-R	Amb.§	B-R	Amb.	B-R
At present	C.‖	C.	C.	Amb.	S-A¶	C.	S-A
Weight (lb.)							
Before therapy	32	44	37	69	32	82	62
At present	41	105	92	97	50	118	84
Objective improvement	100%	100%	75%	50%	75%	100%	25%
Relapse during therapy	Yes	No	Yes	No	Yes	No	No
Duration of remission since end of therapy	X#	15 mo.	X	X	X	11 mo.	..

* Remaining impairment due only to irreversible changes. † Gold salts given simultaneously. ‡ B-R: Bed ridden. § Amb: Ambulatory.
‖ C: Complete recovery of function. ¶ S-A: Semiambulatory (crutch or cane). # X: Still receiving cortisone.

average daily dose ranged from 50 to 100 mg.; the intramuscular route was used before December, 1950, and the oral route afterwards.

Results.—As in adult patients with rheumatoid arthritis, cortisone administered to children was followed promptly and uniformly by striking relief from articular pain and stiffness, diminution or disappearance of swelling and effusion, and increase in range of motion, muscular strength, and coordination. The appetite increased, the weight loss was arrested and readily compensated, the temperature and pulse were reduced to normal levels, the sedimentation rate fell to lower or normal values, and the anemia was lessened.

Five patients were bedridden when treatment was begun. Three of these five had had arthritis for less than one year, and all three recovered complete joint function. The child (D. C.) who was given cortisone on the 10th day of illness was up and about and walked normally in 25 days; the patient (V. M.) who had arthritis for 9 months before treatment was started began to walk unaided in 34 days, and the boy (A. S.) who had the disease for 12 months prior to therapy was able to walk 60 days after treatment (corticotropin) was begun. Two of the five children who were bedridden were treated three and it is clear that in this case the hormone and the heavy metal were not mutually antagonistic. The other child (E. D.) who was ambulatory when cortisone therapy was begun, improved moderately (grade 3 response). She had little or no pain, tenderness, or stiffness of the joints, but some swelling and effusion persisted, and the sedimentation rate ranged from 40 to 76 mm. per hour (Westergren). Low grade activity of the arthritis persists. The objective improvement has been rated 50%.

Relapse During Therapy.—Three of the seven patients had acute relapses while on maintenance doses. Both articular signs and systemic manifestations, such as fever, tachycardia, leukocytosis, elevated sedimentation rate, and anemia occurred. Complete bed rest, administration of salicylates, and increased daily doses of cortisone for from several days to several weeks were required before the relapse subsided. It is not safe to specify, although not difficult to speculate, whether these episodes were due to exacerbations of the disease, to temporary and relative refractoriness to the hormone, to an increased tissue requirement for cortisone, to adrenal cortical insufficiency, or to a combination of two or more of these factors. On the other hand, two patients (V. M. and V. F.) who were in remission when cortisone was

discontinued remained symptom-free for 15 and 11 months, respectively, after the steroid was withdrawn. They are still in remission at present. Regarding progression of the disease during therapy, serial roentgenographic studies of the joints and juxta-articular bones during cortisone therapy revealed increased destruction of cartilage and subchondral bone in several patients who showed clinical improvement.

UNDESIRABLE EFFECTS OF HORMONE THERAPY

It is beyond the scope of this paper to describe the unfavorable side-effects of hormone therapy. It is of interest, however, that none of the children developed any of the three more serious reactions to these drugs, namely, psychosis, peptic ulcer, or traumatic fracture of partially demineralized bone. This series is small, however. In none was growth retarded. Two girls in this series had reached puberty; both menstruated normally. One (V. M.) began to menstruate at the age of 12 years and 8 months, or 15 months after cortisone (given for 385 days) was discontinued, and the other began to menstruate before treatment and continued without interruption or irregularity throughout and after therapy.

SUMMARY

Cortisone or corticotropin therapy produces striking and prompt clinical improvement in the extracardiac manifestations of acute rheumatic fever, such as polyarthritis, fever, tachycardia, "toxicity," anorexia, and anemia. In some cases the hormone may be life saving. The abnormal laboratory features, such as elevated erythrocyte sedimentation rate, plasma fibrinogen level, total serum globulin level, and gamma globulin level and the presence of C-reactive protein are restored or tend to be restored to normal within a few weeks. The effects on the cardiac manifestations are more difficult to evaluate. Pericarditis with or without effusion subsides, as a rule, during the first week of hormone administration; this may, however, occur spontaneously. It is often possible to control congestive heart failure due to acute carditis with cortisone, provided salt intake is limited. Gallop rhythm frequently disappears, the quality of heart sounds improves, and the heart rate diminishes. In the vast majority of cases, organic murmurs, even of recent origin, persist despite adequate hormone therapy. Rarely is an enlarged heart restored to normal size. Rheumatic activity persists in about 50% of the patients after cortisone or corticotropin is withdrawn. At the present state of knowledge it is not known whether administration of adrenal cortical hormones results in the prevention or even significant diminution of damage to cardiac structures. It is clear that old, inactive morphological changes resulting from rheumatic heart disease, such as valvular deformities and cardiac hypertrophy, are not reversed by hormone therapy.

As in rheumatic fever, corticotropin or cortisone suppresses both the systemic and articular manifestations in almost all cases of juvenile rheumatoid arthritis. When administration of the hormones is discontinued, relapses usually follow, unless a spontaneous remission of the disease has occurred. Often exacerbations may develop while the patient is on maintenance therapy. Increase in dosage is required to control such relapses. In some cases, the pathological processes of disease may advance, even while the clinical manifestations are suppressed.

Adrenal cortical hormones are of definite value in properly selected cases. Their administration must not, however, be the only therapeutic measure employed but should constitute an integral part of a carefully planned, individualized, and comprehensive regimen of treatment. They are indicated especially in severe, rapidly progressing forms of disease in which systemic involvement is severe or in which the patient is threatened with serious disability, invalidism, or death.

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CORTICOTROPIN AND CORTISONE IN BLOOD DISEASES IN CHILDREN

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and
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The effect of corticotropin and cortisone on the blood and bone marrow of normal human beings and persons with diseases not primarily of the hematopoietic system is fairly consistent.[1] There is a temporary decrease in circulating eosinophils and lymphocytes, with a sustained increase in neutrophils. The lymphocyte count usually returns to normal with continued administration of the hormones. There may be transient reticulocytosis. A rise in the erythrocyte count, concentration of hemoglobin, hematocrit reading, and red blood cell volume occurs only in patients in whom an underlying disease that produces anemia is favorably affected. The blood platelet count is not altered. Significant changes in the bone marrow are not seen. The response may be more rapid to corticotropin than to cortisone, but there are no essential differences if adrenal function is intact.

LEUKEMIA

The observations by Dougherty and White [2] of the effects of the pituitary adrenotropic hormones on the lymphocytes and the observations by Heilman and Kendall [3] of the effects of cortisone on lymphosarcoma in animals led to an interest in a clinical trial of corticotropin and cortisone in the lymphocytic diseases in man. The commonest malignant lymphocytic disease in children is acute and subacute lymphocytic leukemia. These hormones have proved to be effective in producing clinical

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and hematological remissions in this disease.[4] The doses used are relatively large. From 100 to 200 mg. of cortisone or 40 to 100 mg. of corticotropin are given each day. Often, the physiological effects soon become evident and may necessitate readjustment of the regimen. A restricted intake of sodium, the addition of potassium salts, and the administration of testosterone to offset a negative nitrogen balance may be helpful. The adrenal suppressing effects of cortisone must be kept in mind when this hormone is to be withdrawn. Supportive therapy, such as the transfusion of whole blood and administration of antibiotics, is usually a necessary part of the treatment.

Remissions may occur within a few days or may develop slowly over a period of 20 to 30 days. If significant benefit is to appear, some change will usually be noted by the end of the third week of treatment. Clinical improvement consists of disappearance of fever, lessened muscle and joint pain, cessation of hemorrhage, and decrease in the size of the spleen, liver, and lymph nodes. In the peripheral blood, reticulocytes appear, neutrophils replace lymphocytes, immature cells disappear, and the number of platelets increases. The hemoglobin level and the hematocrit become normal. These changes reflect what is happening in the bone marrow. The dense concentration of lymphoblasts and immature lymphocytes changes so that normoblastic erythrocyte regeneration becomes prominent. This, in our experience, is the earliest favorable sign to appear. In some cases, a temporary hypoplastic phase may precede this. Myeloid elements and megakaryocytes then appear. Eventually the blood and bone marrow may be normal or so nearly normal that a diagnosis of leukemia cannot be made. Such remissions occur when either corticotropin or cortisone is used, and if adrenal function is adequate, there is probably no significant difference in their action. The unfortunate fact is that these remissions, which may be spectacular, are neither uniform nor long continued. Significant improvement or remission following hormone therapy has been reported in from 20 to 75% of children with acute or subacute leukemia.[5] Remissions last from a few days to several months and multiple remissions may be induced. The number of patients who survive more than 12 months from the onset of their disease is not high.

It is hardly possible to discuss the present treatment of acute leukemia in children without a consideration of the folic acid antagonists, principally "aminopterin" (4-aminopteroylglutamic acid) and amethopterin (4-amino-N[10]-pteroylglutamic acid).[6] Most of the patients treated with cortisone or corticotropin have also received folic acid antagonists, since it has been shown that when resistance to one type of therapy develops there may be a subsequent response to the other. In general, the remission rates when folic acid antagonists are used are similar to those that prevail when corticotropin and cortisone are employed. The table summarizes our experiences with both types of therapy. It will be noted that the remissions obtained with the antifolic acid compounds are of longer duration.

With "aminopterin," and to a lesser extent with amethopterin, exceptional attention must be paid to the toxic reactions, which are stomatitis, ulcerative gastroenteritis, and aplasia of the bone marrow. It has been noted that the best responses occur in leukopenic leukemias and that there is seldom a good remission unless a considerable degree of hypoplasia is produced. These factors are not as prominent in the remissions brought on by corticotropin and cortisone, since the improvement may occur without an extreme fall in the leukocyte count. Perhaps the results from simultaneous administration of the hormones and the antagonists are superior to those from the use of either alone.[6] In our experience, such combination has not made a great difference.

There seems to be little doubt that spontaneous remissions occur in acute leukemia. Diamond and Luhby [7] reported an incidence of 10%. Multiple spontaneous remissions have also been reported.[8] No incidence of spontaneous remissions comparable to those associated with treatment with hormones or folic acid antagonists has been reported. It is reasonable to assume, therefore, that corticotropin, cortisone, and the antifolic acid compounds actually induce remissions. Whether such remissions prolong the lives of a significant number of patients is not so clearly answered; Bierman and co-workers [9]

Response to Therapy of Children with Acute and Subacute Lymphocytic Leukemia

Remission	Antifolic Acid Drugs	Corticotropin or Cortisone
Complete	8 (22%)	5 (25%)
Partial	5	2
None	23	13
Total	36	20
Average duration of remission	2.7 mo.	6 wk.

and Rogers and co-workers [10] reported statistics indicating that it does not. On the other hand, Farber and Downing,[11] Pierce,[6b] and Dargeon and Burchenal [12] have reported on a large number of patients who lived more than 16 months after the onset of their disease. It is doubtful that this result could be obtained with only transfusion and antibiotic therapy.

Corticotropin and cortisone occasionally are effective in acute leukemias of other varieties. The results, however, are less satisfactory than in lymphocytic leukemia. Since the other forms are rare in children the problem is not of great practical importance to the pediatrician. Chronic leukemias are seldom found in children, and other forms of therapy are reasonably satisfactory. Each physician called on to make a decision about treatment of the child with acute leukemia must make the decision in view of his facilities, his experience, and the attitude of the parents when the facts are presented.

If treatment is to be undertaken, whole blood and antibiotics should be used when indicated. Forty to 80 mg. of corticotropin given intramuscularly or 100 to 200 mg. of cortisone given orally or intramuscularly combined with 0.5 mg. of "aminopterin" or 2.5 mg. of amethopterin may be given every day. We prefer, however, first to use the hormones alone. If after 18 to 21 days there is no favorable response, a folic acid antagonist should be added. The dose of this may be doubled or tripled to the point of toxic reaction before failure is acknowledged.

If a favorable response occurs, the physician has a choice of continuing therapy at reduced dosage or stopping it and renewing full treatment at the first sign of relapse, which is usually detected in the bone marrow. The folic acid antagonists are more easily managed in therapy over a prolonged period than are the hormones. If symptoms of severe toxic reaction to the folic acid antagonists occur, citrovorum factor may be used to counteract them.[6]

LYMPHOMA

The lymphomas will respond to corticotropin and cortisone therapy. In Hodgkin's disease and lymphosarcoma the disease is less satisfactorily controlled with corticotropin or cortisone than with roentgen therapy.[12] These hormones may prove useful, as has nitrogen mustard or triethylenemelamine, in the treatment of the patient in whom resistance to radiation develops. When there is a severe depression of leukocytes that makes other therapy inadvisable, the hormones may be effective in reducing cervical or mediastinal masses that are causing respiratory difficulty.

HEMOLYTIC ANEMIA

In childhood, the commonest chronic hemolytic anemia is hereditary spherocytosis. The results of splenectomy are so satisfactory that other methods of treatment are not of importance. In acquired hemolytic anemia additions to therapeutic methods are welcome, since splenectomy is often of little benefit. Gardner [4] and Dameshek and co-workers [14] first reported cases in which corticotropin or cortisone was effective. These hormones may decrease the severity of blood destruction, bringing a rise in concentration of hemoglobin, erythrocyte count, and hematocrit, with a decrease in serum bilirubin and fecal urobilinogen levels. A positive Coombs' antiglobulin reaction may become negative. In some instances the disease disappears or can be kept under control with the hormones. In others, relapse occurs. Such therapy may be useful in carrying a patient through crisis until splenectomy may be done safely. In relapses that occur after splenectomy, corticotropin or cortisone may induce a remission. It must be remembered that the disease runs an uncertain course of remissions and exacerbations. We have treated with cortisone 11 patients who had the primary form of acquired hemolytic anemia. Five received significant benefit, but in only one was a complete remission (now in its 11th month) obtained. Only 3 of the 11 patients were children, and only 1 of the 3 showed temporary improvement.

Hemolytic anemia secondary to other diseases is not common in children. Our experience in adult patients indicates that corticotropin or cortisone may be useful in such a situation, especially if the primary disease is leukemia or lymphoma. In all the hemolytic syndromes, the dose schedule should be similar to that employed in leukemia. Small maintenance doses, for example, 25 mg. of cortisone a day, may be used when the response is satisfactory. If therapy fails and splenectomy is to be done, the patient in whom cortisone has been used must be carefully protected against adrenocortical failure in the postoperative period.

OTHER DISEASES

There have been reports of the usefulness of corticotropin in erythroblastosis fetalis.[15] No successful amelioration of the antibody response in Rh-negative mothers has been reported. Good results in erythroblastotic infants following massive or exchange transfusions are now common. It has not been shown that the addition of hormone therapy improves the results.

Corticotropin and cortisone have been reported to be effective in the crises of sickle cell anemia.[16] Further experience will be necessary to evaluate their effectiveness in this familial disease.

Robson and Duthie [17] have shown that capillary resistance to negative pressure is increased after the administration of corticotropin. This hormone and cortisone may be effective in some phases of thrombocytopenic purpura. Bleeding may be controlled even though there is no significant increase in the number of platelets. In children, acute thrombocytopenia is often related to infectious processes. Hirsch and Dameshek [18] have pointed out that in this condition spontaneous remissions occur as frequently as do remissions induced by corticotropin or cortisone. In the chronic forms of the disease, these hormones may have a place in the preparation of the patient for splenectomy, and, at times, surgical treatment may be avoided because of the satisfactory response to the hormones.[19] Rarely have we been able to avoid the use of splenectomy in patients of this group. The benefit obtained from the adrenal hormones in allergic diseases has led to their trial in nonthrombocytopenic or anaphylactoid purpura. While some favorable reports have appeared,[20] our own experience in four cases has been disappointing.

Although there are reports of the favorable action of the hormones in hypoplastic or aplastic anemia,[21] our results in 10 patients, 5 of whom were children, were unsatisfactory.[22] In all of these the aplastic anemia was secondary to chloramphenicol therapy.

SUMMARY

Corticotropin and cortisone exert no significant effect on normal human bone marrow. These hormones, with the folic acid antagonists, constitute an addition to the therapeutic agents available for the treatment of acute leukemia. Remissions produced in 25% of children with acute lymphocytic leukemia in whom these hormones were used were spectacular, but such remissions are not long continued. Roentgen therapy or treatment with the nitrogen mustards is to be preferred to hormone therapy in the management of lymphoma. In acquired hemolytic anemia and thrombocytopenic purpura benefit is seen after hormone therapy, but if the disease is severe, splenectomy is usually not avoided. Aplastic anemia does not respond to therapy with these hormones.

CLINICAL USE OF CORTISONE, HYDROCORTISONE, AND CORTICOTROPIN

Edward W. Boland, M.D., Los Angeles

Less than four years ago, the potential range of usefulness of cortisone and corticotropin was unforeseen, and they seemed destined for small therapeutic roles as replacement agents in a few endocrine disorders. In 1948, this perspective quickly changed when Hench, Kendall, Slocumb, and Polley demonstrated that the manifestations of rheumatoid arthritis and some related nonhormonal conditions were powerfully, though temporarily, suppressed by their administration.[1] Early clinical trials with cortisone and corticotropin were restricted largely to diseases of the collagen type, and favorable responses in rheumatoid arthritis, rheumatic fever, disseminated lupus erythematosus, and periarteritis nodosa suggested at first that their beneficial action might be group specific. Soon, however, many apparently disparate diseases were found to be affected by the hormones, and laboratory data were accumulated that showed clearly that the hormones were widespread in their action, affecting the metabolic and physiological functions of many tissues and organs. Thus, it became evident that the adrenal cortex exerted an influence that extended far beyond the limits of a few diseases, that it was involved in basic tissue reactions, and that the clinical application of hormones derived from it was much broader than initially anticipated.

Clinical experience with the hormones has not yet been sufficiently extensive to allow a full appraisal of their therapeutic utility or limitations. Substantial progress in this respect is being made, however. The remarks included herein are meant to complement reports on the use of cortisone and corticotropin in specific diseases by a few pharmacologic and physiological considerations and some clinical observations that may be useful in the practical application of the hormones.

MODE OF ACTION

The mechanisms involved in the therapeutic actions of cortisone and corticotropin remain obscure, but there is agreement on certain general points: 1. The hormones do not act specifically against any one disease or group of diseases. Inflammatory or hypersensitivity reactions provoked by many different agents may be reduced by their administration. Any specificity they possess is against some yet unknown factor common to a number of disease states. 2. They do not destroy pathogenic organisms or directly influence toxins, allergens, or other noxious agents. 3. They seem to alter, in some mysterious way, certain reactions of tissues to adverse stimuli. 4. Their effects, whether beneficial or deleterious, are usually temporary, and their continued administration is necessary to insure sustained results in chronic diseases. 5. Of themselves, cortisone and corticotropin exert no curative action; but when employed in responsive conditions that are self-limited by nature they may inhibit pathological processes while the disease runs its course. In some diseases amenable to more specific therapy they may serve as valuable ancillary agents in treatment.

At present, it is only vaguely understood how the pituitary-adrenal system functions under physiological conditions. In broad and oversimplified terms, it is believed that the endogenous output of adrenal cortical steroids is regulated largely by the amount of corticotropin secreted by the anterior pituitary gland. Presumably a state of reciprocal control exists, so that a fall in titer of circulating cortical steroids serves as a stimulus for the production of greater quantities of pituitary tropic hormones. Corticotropin is thought to be supplied continuously to the circulation, its concentration always fluctuating to cope with environmental changes. Under conditions of stress, internal or external, the discharge of corticotropin supposedly increases and the adrenal cortices respond by yielding more steroid hormones in quantities and kind sufficient to incite the metabolic and other changes required for satisfactory physiological adjustment.

Several working hypotheses, all admittedly tentative and imperfect, have been proposed to explain how cortisone and corticotropin may suppress pathological reactions. It has been suggested that the manifestations of various collagen diseases and allergic conditions may be due to overactivity or oversensitivity of mesenchymal tissue and that cortisone-like steroids, acting at the tissue level, inhibit this excessive reactivity.[2] Presumably satisfactory reversal of the tissue changes is not obtained unless supernormal amounts of hormones are supplied, a feat which, under conditions of the disease, the adrenal cortices do not accomplish [3]; whether this represents a relative hormone deficiency created by an abnormal demand of diseased tissue for steroids in the presence of normally functioning glands or is the result of improperly functioning adrenals in the diseases concerned or both is a question open to speculation.[4] In various collagen and allergic diseases gross clinical signs of adrenal cortical insufficiency are usually lacking, and, in rheumatoid arthritis, at least, the adrenal glands, when examined by usual histological techniques, are not altered anatomically.[5] Recent studies suggest, however, that in some of these diseases there may be a basic imbalance in steroid production and/or metabolism, an imbalance that is lessened, though not eliminated, by effectively administered cortisone or corticotropin.[6] In overwhelming infections, extensive burns, and serious shock from other causes, the adrenal glands are viewed as being unable to supply sufficient steroids with which to counteract the insults imposed, and the addition of cortisone-like steroids directly through cortisone or indirectly through corticotropin therapy may provide the extra support needed.

It is believed that cortical steroids, once discharged into the blood stream, are delivered to the tissue cells and

Because of space limitations, the bibliographic references have been omitted and will appear in the author's reprints.

Read in the Symposium on the Present Status of Corticotropin, Cortisone, and Allied Substances in Pediatric Practice before the Section on Pediatrics at the 101st Annual Session of the American Medical Association, Chicago, June 10, 1952.

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PREPARATIONS AND ROUTES OF ADMINISTRATION

Many steroidal substances have been tested, but only two, cortisone and hydrocortisone, show a definite capacity to inhibit inflammatory and allergic reactions. The action of these two substances seems to depend on a remarkable specificity in their chemical structures, with the placement of certain radicals at specific positions on the 21-carbon steroid nucleus. By comparing the configurations of ineffective analogues with the formulas for cortisone and hydrocortisone, Polley and Mason determined that certain structural requisites must be fulfilled before a steroid possesses anti-inflammatory or antiallergic properties.[8] These are as follows: ketone groups at positions C3 and C20, hydroxyl groups at C17 and C21, either a ketone or a hydroxyl group at C11, and a double bond between carbon atoms 4 and 5.

Cortisone.—Cortisone (17-hydroxy-11-dehydrocorticosterone) has been prepared as the pure hormone, cortisone (free alcohol), and as cortisone acetate. The two forms appear to be about equal in therapeutic potency when administered systemically.[9] Both compounds may be produced by partial chemical synthesis, but as manufacture of the acetate is easier and allows greater yields, this form has been made available commercially. Desoxycholic acid from bile and stigmasterol from soy beans are the principal starting materials in present methods of synthesis, but the use of a number of parent substances, including orthotoluidine from coal tar, ergosterol from yeast, hecogenin from sisal waste, and diosgenin from Mexican yams, is possible.

Cortisone acetate may be administered systemically by either the intramuscular or oral route, and it may be applied topically as a suspension or an ointment to such areas as the eyes or skin. When given intramuscularly, its absorption is relatively slow, extending over many hours, and an injection once daily, every second day, or even three times a week under some conditions will insure good continuous effects. In most instances, the drug may be given more easily and more satisfactorily by mouth.[10] Intramuscular injections are now used seldom and only under special conditions, i. e., in the few patients who, presumably because of faulty alimentary absorption, respond better to parenteral administration or in whom oral administration is temporarily not feasible (following abdominal surgical procedures or during attacks of acute gastroenteritis). The doses required for oral administration are surprisingly similar to those required for intramuscular injection; some patients require no more and others only slightly more of the hormone when it is taken orally. Response to the orally administered drug is rapid, usually beginning within a few (6 to 24) hours after the initial dose. The effects are dissipated quickly also, and a single dose usually fails to provide uniform symptomatic control over a 24 hour period. Results are distinctly better when the total daily amount is taken in divided doses, preferably four times a day, at mealtimes and at bedtime. With such dosage, the effects are evenly spread over the 24 hour period and smaller total daily amounts of the hormones are required.

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Meager quantities of hydrocortisone (free alcohol) have been available for laboratory and clinical research because, until recently, production of the hormones has depended on two complicated and expensive processes of biosynthesis. The first involves perfusion of isolated bovine adrenal glands with media containing 11-desoxy-17-hydroxycorticosterone (Reichstein's compound S); during perfusion, the gland places a hydroxyl radical at the 11th carbon position and changes the substance to hydrocortisone. In the second process, Reichstein's compound S is incubated with macerated adrenal tissue; during incubation the steroid is changed to hydrocortisone by the action of adrenal cortical enzymes. The free hormone is now being prepared by chemical synthesis, and greater quantities for clinical investigation may be expected to be available. The physiological activities of the free alcohol forms of hydrocortisone and cortisone have been carefully compared in laboratory animals, and hydrocortisone has repeatedly shown greater potency.[12] Based on muscle work tests, liver glycogen assays, and capacity to induce regressive changes in certain ductless glands and to promote lysis of eosinophils, hydrocortisone has been found to be about twice as potent as cortisone. The therapeutic efficacy of hydrocortisone (free alcohol) as compared with cortisone (free alcohol) and cortisone acetate has not been fully determined, but a recent study with the orally administered substances in patients with rheumatoid arthritis indicated that the potency of hydrocortisone (free alcohol) is, milligram for milligram, more than 50% greater than that of either of the other two substances.[13]

Hydrocortisone acetate is produced by partial chemical synthesis and is marketed as a suspension suitable for local administration. When injected intra-articularly, it may temporarily reduce the inflammatory reaction in individually treated rheumatoid arthritic joints, and its local effect is reported to be superior to that of cortisone acetate.[14] With systemic administration, however, hydrocortisone acetate is not so effective. In a recent study in which the dosage requirements of the various prepara-

tions for oral administration in patients with rheumatoid arthritis were compared, hydrocortisone acetate was found to be about one-half as potent, milligram for milligram, as hydrocortisone (free alcohol) and about two-thirds as potent as cortisone acetate.[9] The inferior results from oral administration have not been fully explained, but the solubility of the compound in various media is less than that of cortisone acetate and far less than that of hydrocortisone (free alcohol); this low solubility may substantially lessen its alimentary absorption.

Corticotropin (ACTH).—Corticotropin is a complex protein substance, the chemical formula of which is undetermined and which is prepared by extraction from the anterior pituitary glands of animals. The pituitaries of swine now provide its chief commercial source, but potent preparations are made also from the glands of cattle, horses, sheep, and whales. The physiological activity of corticotropin depends on its ability to stimulate responsive adrenal cortices, and this action appears to be selective; when corticotropin tagged with radioactive iodine is injected into the circulation, it is delivered immediately to the adrenal cortices, where the radioactivity remains, in gradually decreasing amounts, for about two hours.[15] Corticotropin stimulates all known functions of the cortex, causing it to yield a multiplicity of steroids, but the 11-hydroxy steroids are produced predominantly; perfusion of isolated beef adrenal glands with blood enriched with corticotropin greatly increases the secretion of hydrocortisone and corticosterone (Kendall's compound B), both of which are 11-hydroxy steroids, while secretion of 11-ketones (such as cortisone) is increased only slightly and secretion of 11-desoxy substances is stimulated least.[11] It is assumed that exogenously administered corticotropin renders a similar secretion pattern in normal persons, but whether steroids are stimulated in different proportions in diseased patients has not yet been determined.

Corticotropin is inactivated by gastrointestinal enzymes and is effective only when administered parenterally. Standard aqueous preparations given intramuscularly are rapidly absorbed and metabolized; gauged by the eosinopenic response, the effects following a single dose become maximal within four hours and have largely regressed after eight hours. For this reason, the optimal frequency for administration of short acting aqueous preparations is about every six hours, the total daily requirement being divided into four equal parts.

Small amounts of aqueous corticotropin, diluted in a solution, such as 5% glucose in water, and administered intravenously, cause a rapid and striking response of the adrenal cortex.[16] The physiological potency of the hormone is enhanced about 10 to 20 times when given by this route, and as little as 10 to 25 mg. infused slowly over periods of 12 to 24 hours may produce a marked response. Intramuscular administration is thought to be less effective, because tissue proteolytic enzymes may partially destroy the depots of corticotropin, so that only a portion of the injected hormone reaches the adrenal cortex as a biologically active chemical. The intravenous administration of corticotropin, for obvious reasons, has limited practical application, but it may be useful in certain desperate situations and as a research procedure.

Effort has been made to perfect a long acting corticotropin that would promote uniform continuous adrenal cortical stimulation from a single daily intramuscular injection. A number of retarding vehicles have been added to the hormone, but no mixture yet produced has proved as efficient as aqueous preparations given at six hour intervals. Corticotropin in gelatin and propylene glycol administered by intramuscular or deep subcutaneous injection provides satisfactory results on a single daily injection basis in some persons whose daily requirements are relatively small. But when requirements are large, over 30 to 40 mg. a day, injections twice a day are usually needed for satisfactory control. Undoubtedly, more effective long acting preparations will be forthcoming. Polypeptide fractions of corticotropin, prepared by peptic digestion methods, have received limited clinical trial and may have interesting therapeutic prospects for the future. Qualitatively, they appear to possess the same biologic activity as standard corticotropin,[17] and some investigators have claimed that the smaller molecular derivatives are considerably more potent.

Preference of Preparations for Practical Use.—As corticotropin stimulates the production of several different adrenal cortical hormones, not only those with cortisone-like activity, and as it is probable that these steroids work in some sort of synergism and/or antagonism, corticotropin theoretically may be expected to have therapeutic advantages. Actually, the various diseases in which these hormones are effective, in general, have about the same reaction to either cortisone or corticotropin, provided proportional doses are employed and, in the case of corticotropin, the adrenals are functionally responsive. Investigators have claimed better results in certain conditions (asthma, disseminated lupus erythematosus, acute gouty arthritis, ulcerative colitis, and nephrosis in children), with one or the other hormone, but often there has been disagreement regarding the preference. Most clinicians agree that cortisone has advantages in the practical management of patients. It may be given orally, with less over-all cost to the patient. Dosage may be readily adjusted to counteract changes in disease activity, without consideration of the adrenals' capacity to respond. In contrast to the variable strengths of corticotropin preparations, cortisone is constant in potency. Certain undesirable hormonal side effects occur less frequently and are easier to control with cortisone, especially salt and water retention, potassium depletion, and arterial pressor changes.

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ease. The dose should then be gradually decreased, either to the cessation of therapy in self-limiting diseases or to minimal maintenance requirements in chronic diseases. The basic policy should be to provide the best possible suppression consistent with the avoidance of significant hormonal complications. Several treatment schedules have been devised and are being investigated, but so far two general plans have proved most valuable: (*a*) full dose schedules for short-term use and (*b*) low dose schedules for prolonged treatment.

Full Dose Schedules.—This plan is suited for acute or subacute self-limited conditions, such as acute rheumatic fever, acute allergic states, and acute gouty arthritis, and for certain acute infections in which the hormones are used as adjunctive therapy. Early suppressive doses should be sufficiently large to bring the inflammatory or allergic reaction under control, and then relatively large daily amounts are given for a number of days or, at most, for a few weeks thereafter. Initial doses of cortisone for oral administration are usually in the neighborhood of 150 to 300 mg. a day, followed by total daily amounts of about 100 mg. Proportional doses of aqueous corticotropin for intramuscular administration are, in milligrams, about one-half as large as the cortisone doses. When the disease process appears to have subsided, the dosage is gradually reduced, and administration is finally stopped. Gradual rather than sudden withdrawal is of utmost importance in preventing rebound relapses and post-hormone-therapy fatigue syndromes. When these larger doses are employed, undesired side effects are often encountered, but the risk of their appearance seems justified, since treatment is not carried out for long periods, and these reactions disappear promptly with cessation of treatment.

Low Dose Schedules. — A number of otherwise unmanageable chronic diseases may be kept under symptomatic control for long periods by the careful administration of cortisone or corticotropin in smaller maintenance doses. Complete inhibition of the disease is not sought, and dosage is adjusted to allow reasonable degrees of functional rehabilitation. As the incidence and severity of untoward hormonal reactions vary, in general, with the size of the dose employed, effort is made to use "safe" amounts and to be content with less than full suppression of symptoms, unless this can be accomplished with such doses. This plan may be applied in such diseases as chronic rheumatoid arthritis, asthma, certain chronic inflammatory or allergic skin diseases, disseminated lupus erythematosus, chronic ulcerative colitis, and periarteritis nodosa. Most of my experience with prolonged therapy has been with cortisone in rheumatic diseases, especially rheumatoid arthritis.[18] A fairly uniform plan of treatment consisting of three stages has been followed: (*a*) a period of initial suppressive doses; (*b*) a period of gradual dose reduction; and (*c*) a period of smaller uninterrupted maintenance doses.

Initial suppressive doses: For severe and moderately severe cases of rheumatoid arthritis, 150 to 200 mg. of cortisone acetate have been given for one or two days, followed thereafter by 100 mg. daily. For moderate and mild cases, 100 mg. have been given on the first and subsequent days. These suppressive amounts have been continued until the clinical manifestations were brought under adequate control; in general, the time required for this has varied with the severity of the disease, ranging from one to four weeks.

Reduction of dosage: After satisfactory suppression has been attained, the daily amounts of cortisone have been gradually decreased in decrements of 12.5 mg. (one-half tablet) or less, at intervals of every 5 to 10 days or more slowly in severe cases.

Maintenance doses: The smallest total daily amount of hormone that has controlled the disease adequately, but not necessarily suppressed it completely, has been considered as the patient's maintenance dose. Once established, these smaller doses have been continued without interruption for long periods, and some patients have now been treated continuously and satisfactorily for more than two and one-half years.

General "Rules."—Some lessons gained from this experience that have practical connotations and that may be applied, with variations, to the treatment of other responsive chronic illnesses, are as follows:

Uninterrupted therapy may successfully control the disease manifestations in many but not all patients with rheumatoid arthritis. By this method, satisfactory improvement may be maintained for long periods in about two-thirds of the patients. Most failures occur among patients with severer disease whose dose requirements are large; in these, the maintenance quantities needed for proper regulation are often excessive, provoking hormonal complications that necessitate a lowering of the dose, with sacrifice of clinical improvement. Because continued large doses almost invariably lead to the development of endocrine complications, a general policy has been adopted of being content with the best results that can be maintained with "safe" dose levels. If adequate relief cannot be provided by such dosage, then the patient and physician should either settle for less than satisfactory control or discontinue therapy.

Initial suppressive doses should not be too large, and they should not be administered for too long. It is best to begin a gradual step-down in dosage when satisfactory rather than complete symptomatic improvement is attained, because patients sometimes find it difficult to accept even a partial return of symptoms when the dose is lowered to a "safe" level. In general, clinical improvement of about 75 to 85% of the pretreatment status is optimal for long-term therapy. Changes from initial suppressive to smaller maintenance doses should not be made rapidly. A sudden drop in the dose, for example, from 100 mg. to 50 mg. a day, may cause loss of clinical control. Much better results are achieved by gradually lowering the dose to a maintenance level.

Cortisone requirements for maintenance therapy vary in individual cases, but the doses needed for effective control depend more on the activity of the disease and on the amount of physical or emotional stress to which the patient is subjected than on other factors; in general, the more active the disease, the more hormone required. Physical and/or emotional overactivity may aggravate the disease, necessitating use of larger doses; patients must be made to realize that their illness is merely suppressed and that over-exertion, with resultant breakthrough of symptoms, is to be avoided. Maintenance doses, once established, should be considered

relative, not fixed. Fluctuations in disease activity occur commonly during the course of treatment and necessitate periodic adjustments in dosage. For temporary flare-ups in activity, whatever the cause, the use of "booster doses" will usually bring the process back under control; these consist of 75 to 125 mg. of cortisone daily for a few days, followed by a gradual reduction to the previous dose level.

Patients being treated with lower doses are usually sensitive to relatively small changes in the amount of hormone administered. Increases or decreases of as little as 5 to 12.5 mg. a day are generally reflected symptomatically; this fact should be appreciated when adjustments are being made. The size of the maintenance dose should be determined on the basis of clinical improvement and the occurrence of undesirable side reactions. The erythrocyte sedimentation rate is not a reliable gage.

Some patients whose disease has been adequately controlled for months with small doses of cortisone may become relatively refractory, and improvement may deteriorate despite use of increasing and eventually intolerable amounts of hormone. In such instances, responsiveness to the drug usually returns if treatment is stopped, and a rest period of two or three months is allowed. When for any reason cortisone administration is discontinued, the drug should be withdrawn gradually to prevent or to minimize so-called withdrawal symptoms. Reduction of the dose by 12.5 mg. (one-half tablet) at intervals of 7 to 14 days, depending on the individual circumstances, has been a satisfactory method.

Although, in general, hormonal side effects are best corrected by lowering the dosage of cortisone, certain mild complications can often be controlled by other means. Slight or moderate edema, for example, can usually be controlled by restricting the dietary intake of salt and/or prescribing a saline diuretic, without abandoning use of effective amounts of the hormone.

Attempts to employ the so-called "course method," which consists of relatively short periods of hormone administration with intervening rest periods, have been unsatisfactory in my patients. While improvement occurred each time the hormone was given, relapse invariably resulted when treatment was interrupted. Lasting remissions have not been promoted, and the degree of relapse has not decreased with successive courses.

EFFECTS OF PROLONGED THERAPY

The adrenal glands may be functionally inhibited and undergo atrophic changes during prolonged cortisone administration,[19] whereas corticotropin therapy may lead to adrenal cortical hypertrophy and sometimes hyperplasia and to retrogressive histological alterations in the anterior pituitary gland.[20] Fear has been voiced that such changes might be permanent, persisting indefinitely after withdrawal of the hormones, and leading, in the case of cortisone, to an Addison-like state or, in the case of corticotropin, to a Cushing-like state; however, necropsy data reveal that anatomic alterations in the glands apparently do not develop in man until large total doses of hormone have been given, and even then the glands revert to their initial size and normal histological pattern soon after administration of the hormone is stopped.[21]

Laboratory studies indicate that prolonged uninterrupted therapy with cortisone does not produce irreversible functional impairment of the adrenal cortex. The drug has been withdrawn from patients who received the hormone continuously for periods of 8 to 26 months and whose average maintenance doses have ranged from 37.5 to 100 mg. a day. In each instance, the eosinopenic response to exogenously administered corticotropin, although abnormal during treatment, returned to the normal or pretreatment value following withdrawal. As indicated by this test, adrenal cortical function usually returned within 30 days, sometimes within 10 days, and always within 90 days after treatment was stopped. The relative adrenal insufficiency that occurs during cortisone treatment does, however, have a practical bearing on the patient's ability to cope with special intercurrent stresses, such as trauma, severe infections, or surgical procedures. Because the patient's own adrenal glands may be inadequate to supply the additional corticoids demanded under such conditions, increased doses of exogenous cortisone may be temporarily required. It is important that patients established on cortisone or corticotropin do not have the drug withdrawn at the time of surgical treatment or a similar crisis.

COMPLICATIONS

Voluminous data have accumulated describing the powerful physiological activities of cortisone and corticotropin. While the reasons why the hormones produce their beneficial influence on disease have not been explained, the reasons for many of the complications that may attend their administration have been clarified. These complications actually represent undesirable physiological effects resulting from an induced state of hormone excess. They serve as the chief obstacle to the more successful therapeutic application of the hormones and create absolute or relative contraindications for their use in the presence of certain pathological conditions.

The potential risks implicit in the therapeutic use of cortisone and corticotropin have not been determined finally, but certain general observations regarding endocrine complications seem to be agreed on at present. Some of these may be listed as follows: 1. Most are fully reversible and disappear promptly or fairly promptly with reduction of the dose or cessation of administration. 2. Although individual patients differ in susceptibility, the incidence and severity of unwanted reactions tend to vary directly with the size of the dose employed. 3. When the hormones are given cautiously in reasonable doses and in the absence of contraindications, complications, if they occur, are usually minor or transient and of little consequence. 4. Most minor complications are signals for caution and perhaps for reduction in dose, but are not indications for discontinuance of therapy. 5. Serious reactions are rare, unless the hormones are given in excessive amounts for long periods or in the presence of contraindicating conditions. 6. Their incidence does not increase appreciably with prolongation of therapy, provided the maintenance doses used are small. 7. They are more apt to develop in women than in men, and their incidence is especially high in children, because the doses required may be almost as large as those needed by

adults and are proportionately much greater for the body size. 8. Most side effects may be controlled or prevented by judicious regulation of dosage and/or the use of simple adjuvant measures. In many instances, however, control of complications through dosage restriction interferes with the maintenance of satisfactory therapeutic results.

Changes in Fat Metabolism.—There is ample evidence to show that cortisone and corticotropin influence the metabolism of fat. In some patients they may cause increases in the levels of total and esterified cholesterol [22] and transient ketonuria.[23] Both the absorption and storage of fat appear to be enhanced, and when significant degrees of hyperadrenocorticism are induced, changes in body configuration, similar to those observed in spontaneous Cushing's disease, may ensue. Generalized obesity and abnormal deposits of adipose tissue in the cheeks (facial "mooning"), the supraclavicular fossae, and the back of the neck ("buffalo hump") are among the most common signs of hormone excess. Excessive weight gain is more easily prevented than corrected, and it is advisable to limit the caloric intake during treatment as soon as the patient approaches an optimal body weight. Localized deposits of fat usually decrease or disappear with dose reduction, but minor changes, such as slight facial mooning, may be safely accepted by the patient if lowering of dosage seriously interferes with symptomatic relief.

Changes in Carbohydrate Metabolism.—Experiments have shown that both hormones exert diabetogenic effects in small laboratory animals [24]; based on body weight, however, the quantity of hormone needed to disrupt carbohydrate metabolism far exceeds that used therapeutically in man. Apparently, nondiabetic patients have sufficient functional reserve of islet tissue to offset the anti-insulin effects of ordinary doses of cortisone-like steroids. Of more than 200 patients with rheumatoid arthritis whom I have treated with cortisone, only three with normal pretreatment glucose tolerance curves have shown significant alterations in carbohydrate metabolism during treatment. Cortisone therapy was continued in each of these patients, and the glycosuria was easily controlled by qualitative dietary restriction of carbohydrate; when administration was eventually stopped, after 8, 14, and 22 months, respectively, the tolerance curves quickly reverted to normal. Frank diabetes mellitus necessitating the use of insulin for control is usually a contraindication to treatment with these hormones. The hormones, even in moderate doses, intensify the diabetic state and greatly augment the requirements for insulin; however, mild or latent diabetes need not necessarily prohibit the use of cortisone, and with the knowledge that any accentuation of the diabetes will be reversible, a cautious trial of the drug in reasonable doses would seem justified. Several such patients have been successfully treated with small maintenance doses of cortisone for long periods, the sugar metabolism being controlled by ordinary diabetic management and insulin being employed when necessary. Progressive increase in severity of the diabetes has not resulted from continued therapy.

Changes in Protein Metabolism, Growth, and Wound Healing.—Large doses of cortisone or corticotropin given to adult patients may cause increased urinary nitrogen excretion and a negative nitrogen balance.[25a] Diets high in protein and the complemental use of testosterone propionate and potassium salts have been suggested as measures to circumvent this tendency. With ordinary therapeutic doses, even though continued for long periods, clinical evidence of accelerated protein catabolism is rarely noted, however, and such precautionary steps are seldom necessary.

The growth of immature normal rats may be impeded greatly by the administration of large amounts of cortisone or corticotropin, but it is resumed when the hormones are withdrawn.[25] Based on body weight, the quantities needed to produce this inhibitory effect are considerably greater than those employed therapeutically, but the question may be asked whether long-continued use of the hormones in children may retard their development. A definite answer cannot yet be given, for studies of the influence of long-term therapy on the osteogenesis and general growth of children are wanting. Short-term administration, even of large doses, for such conditions as acute rheumatic fever does not appear to influence development, but most clinicians rely on interrupted treatment schedules in children with chronic diseases and avoid treating them continuously for more than several weeks at a time.

Large amounts of cortisone or corticotropin administered to animals produce striking alterations in the fibroblasts of loose connective tissue and in amorphous ground substance.[26] Furthermore, excessive amounts of either hormone will inhibit granulation tissue formation in rabbits and may retard wound healing in human subjects.[27] The inhibiting effect appears to be directly proportional to the degree of hyperadrenalism induced; doses of corticotropin of about 200 mg. a day may cause a distinct delay in wound healing in humans, but little or no retardation is noted when doses of 50 mg. a day or less (or 100 mg. a day or less of cortisone) are given. In my experience, postoperative wound healing has not been a problem, for with usual therapeutic doses gross healing has proceeded in a normal manner.

Changes in Electrolyte Metabolism.—Both hormones have the capacity to cause retention of sodium and to promote the loss of potassium, although this tendency is much greater with corticotropin than with cortisone. Corticotropin stimulates the secretion of not only cortisone-like steroids but also desoxycorticosterone-like hormones. Instances of potassium depletion from extremely large doses of the hormones, with attendant manifestations of muscular weakness, arterial hypotension, and electrocardiographic changes characteristic of hypopotassemia, have been reported [28]; fortunately, this rarely occurs with reasonable dose schedules. Obviously, hypopotassemia, especially if coupled with salt and water retention, could be hazardous to patients with impaired cardiac function. In my early experience with cortisone, when larger initial suppressive doses were used, edema was frequently a troublesome side reaction. Since somewhat smaller suppressive doses have been employed and dose reduction is accomplished earlier, extreme degrees of fluid retention have rarely occurred. Mild edema is commonly encountered, however, especially in women,

but it generally responds readily to dose reduction and/or dietary restriction of salt; only occasionally is it necessary to hasten diuresis with saline or mercurial diuretics. It is now customary practice to place patients on sodium poor diets (allowing no highly salted foods or salt in addition to that used normally in cooking) at the beginning of treatment while large suppressive doses of hormone are given and to impose this restriction if maintenance doses greater than 50 mg. a day are prescribed.

Skeletal Changes.—That osseous demineralization and fractures might occasionally develop in patients subjected to prolonged induced hyperadrenocorticism seemed possible, in view of the fact that spontaneous Cushing's disease may be complicated by osteoporosis, excessive calcium excretion, and pathological fractures. Although the incidence of spontaneous fractures is low in patients being treated with cortisone or corticotropin, this complication, when it occurs, constitutes a real and distressing problem. Seven of my patients have had spontaneous fractures (compression fracture of a vertebral body in four and fracture of the femoral neck in two and of a pubic ramus in one) during the course of cortisone administration. Each patient had long-standing severe rheumatoid arthritis; five were being controlled on relatively large maintenance doses (75 mg. a day or more), five had been treated continuously for long periods (8 to 26 months), and six were past the age of 60 years. It is probable that skeletal osteoporosis from senility or rheumatoid arthritis or both was present before treatment, but it also must be assumed that decalcification was accelerated by the induced state of hormone excess. Whether spontaneous fractures eventually may be encountered in younger persons from long-continued therapy remains to be seen, but the possibility of this complication must be kept in mind when elderly subjects or others with already existing skeletal osteoporosis are being considered for cortisone or corticotropin treatment.

Androgenic Effects.—Cutaneous changes attributable to increased androgen activity occur occasionally during treatment, especially with corticotropin, but they are rarely troublesome unless large doses are employed for extended periods. Chief among these are hypertrichosis, which usually consists of a fuzzy hair growth on the face in women, and acne, which affects both sexes about equally. Hypertrichosis has seldom been more than slight or moderate in patients maintained on relatively small doses of cortisone, although it has been cosmetically objectionable in a few patients, and the excess hair has been removed by electrolysis. Oligomenorrhea or temporary amenorrhea sometimes develops in women subjected to relatively large amounts of the hormones.

Psychic Changes.—The majority of patients who receive cortisone or corticotropin note beneficial changes in their mental reactions. Feelings of well-being are promoted, thought processes are accelerated, attitudes become cheerful and, in general, the mood is one of elation. These changes are noted especially when treatment is first instituted and large amounts of the hormones are used. Some patients seem to be more susceptible than others, but, in general, the degree of mental stimulation depends mainly on the size of the dose administered. With large doses, psychomotor activity may be unduly heightened and the patient may be troubled with insomnia, nervous agitation, and excessive mental and physical drive. The reaction usually tapers off gradually as treatment is continued and especially after maintenance therapy with smaller doses of the drugs is instituted; restlessness and insomnia are rarely troublesome with cortisone in daily doses of 62.5 mg. or less. Major mental disturbances with frank psychotic reactions have been reported in a few patients during corticotropin and cortisone therapy. Most of these patients have had histories of overt psychotic episodes or of marginal psychological adjustment, but apparently some have had no such background, the episode developing without warning and as a complete surprise to the physician. Early in my experience with cortisone, two women patients, both in their climacteric and emotionally unstable beforehand, showed pronounced mental stimulation, which was sufficiently severe to warrant discontinuance of treatment. Except for these, no serious mental reactions have been encountered. This may be owing, in part at least, to the fact that the drug has been denied to patients with evident emotional instability or past psychotic episodes and to the fact that treatment has not been continued for long periods, except on a reasonable dosage basis.

Other Complications.—Because cortisone and corticotropin modify the local tissue reaction and systemic response to infectious agents, bacterial products, and miscellaneous inflammatory incitants, the signs and symptoms of unanticipated intercurrent complications may be obscured to a lesser or greater degree during the course of treatment. Instances have been reported in which the detection of complications, such as intestinal obstruction with peritonitis, has been delayed and the diagnosis of pneumococcic pneumonia and other infections has been concealed until necropsy. While the clinical picture of intruding diseases might be seriously veiled during the administration of large doses of hormone, in my experience complications of various kinds usually have been readily recognizable when smaller maintenance doses have been employed. Nevertheless, physicians should be mindful that the hormones are capable of masking the usual manifestations of intercurrent diseases.

Cortisone or corticotropin may suppress the systemic symptoms of tuberculosis, but the pulmonary lesions progress, sometimes at an accelerated rate, and active pulmonary tuberculosis is a contraindication for their use. Reactivation of old and apparently arrested lesions has been attributed to treatment with these hormones and, at the present state of knowledge, arrested parenchymatous tuberculosis should be considered as a relative contraindication. Diagnostic roentgenograms of the chest should be made routinely in all candidates for treatment.

Both hormones may increase the secretion of gastric acids and pepsin, and the possibility of reactivating a healed peptic ulcer or producing a new one during treatment must be kept in mind. The hormones should be used with great care if there is a history of ulcer, and patients

with active lesions should not receive the drugs. Serious gastrointestinal complications may occasionally develop; my series includes four such instances: three patients with previous ulcer symptoms have experienced massive hemorrhages, and one patient without previous symptoms had sudden duodenal perforation. Complaints of postcibal distress or nausea occurring during therapy should be respected and, even though mild, should be investigated. The concomitant use of acetylsalicylic acid seems to increase the tendency for these complications to occur.

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CORTICOTROPIN AND CORTISONE IN MANAGEMENT OF THE NEPHROTIC SYNDROME IN CHILDREN

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About three years have elapsed since corticotropin (ACTH) and cortisone were first used in treatment of the nephrotic syndrome. Although this is not enough time to evaluate fully the role of a new treatment in a disease with such a prolonged natural course, enough experience has been gained to justify some definite conclusions and to suggest other probabilities. That these hormones are of importance in the management of nephrosis is attested to by the many papers that have appeared reporting small experiences with them; a fairly complete bibliography can be found in two recent reports by Rapoport and co-workers [1] and Luetscher and co-workers.[2] The results reported have been in general agreement. The purpose of this article is to summarize the results of my experience with both corticotropin and cortisone in a fairly large group of patients at one institution, with attention to not only the immediate effects but also some of the longer term results.

MATERIAL AND METHOD

Since July, 1949, I have treated 50 patients with the nephrotic syndrome with corticotropin, cortisone, or a combination of the two. In the accompanying figure is shown the distribution of the patients according to age at onset of the disease, and it is comparable to that of any random group of nephrotic patients. The three patients shown as over 16 years of age were 16, 17, and 50. No attempt was made to select patients according to whether they had pure lipid nephrosis or the nephrotic stage of chronic glomerulonephritis. There were many who could be considered to belong in this latter category. I did not, however, treat any patient who had signs of severe renal damage in the form of excessive nitrogen retention. The duration of the disease prior to the first treatment varied from less than two weeks to several years.

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Read in the Symposium on the Present Status of Corticotropin, Cortisone, and Allied Substances in Pediatric Practice before the Section on Pediatrics at the 101st Annual Session of the American Medical Association, Chicago, June 10, 1952.

1. Rapoport, M., and others: Effect of Corticotropin (ACTH) on Children with the Nephrotic Syndrome, J. A. M. A. **147**: 1101 (Nov. 17) 1951.

2. Luetscher, J. A., Jr.; Deming, Q. B., and Johnson, B. B.: Treatment of Nephrosis with Pituitary Adrenocorticotrophin, J. Clin. Investigation **30**: 1530, 1951.

3. Rapoport and others.[1] Luetscher, Deming, and Johnson.[2] Farnsworth, E. B., and Dupee, C.: Further Studies on the Effects of ACTH in the Nephrotic Syndrome, in Proceedings of the Second Clinical ACTH Conference, edited by J. R. Mote, Philadelphia, The Blakiston Company, 1951, vol. 2: Therapeutics, p. 149.

The regimen adhered to has, with the lapse of time and increasing experience, undergone many modifications. Originally, because of its availability, only corticotropin was used. Doses were adjusted in an approximate way according to body size. Patients under 4 years of age were given 60 mg. a day in four divided doses; those between 4 and 9 years received 80 mg., and the older children and adults were given 100 mg. daily. When cortisone became available, fear of using large doses of this type of hormone had been lessened by increasing familiarity. At first, 100 mg. daily was given intramuscularly to small children; soon the amount was increased to 150 mg., and currently 200 mg. is the usual dose, with up to 300 mg. being given to adults. Also, cortisone is now being given orally, instead of intramuscularly, in four divided doses, because of the greater ease of administration without apparent loss of effectiveness. In some instances, a combination of the two agents was administered simultaneously. When this was done, the daily dose of each was about one-half that when it was used alone, i. e., 40 mg. of corticotropin with 50 mg. of cortisone; this was given either by mouth or by the intramuscular route.

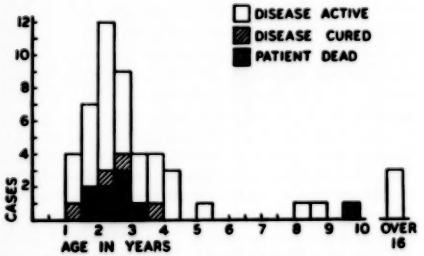
Duration of treatment also has increased with growing experience. Originally, a "course" consisted of four or five days, but now it is regularly 10 days, unless diuresis has begun earlier. Other workers [3] have reported longer periods of administration, but these longer periods do not appear to have increased the effectiveness of the drugs. Since these are powerful biological agents, the longer periods might increase the danger of unfavorable secondary manifestations. We are currently using admittedly large doses over a maximum period of 10 days. Although large doses are not necessary in all cases, they have not proved unduly dangerous, and we know of no way of selecting those patients in whom smaller doses will be effective.

IMMEDIATE EFFECTS

Of the 50 patients treated, only 5 failed to respond at some time; the remaining 90% experienced a beneficial result associated with at least one course of treatment. Nearly half the patients were treated with different regimens on separate occasions. Therefore, in assessing the over-all effects of corticotropin and cortisone it will be more informative to analyze the results of individual treatments than to compare the results in individual patients.

Results of each course have been classified according to whether a significant diuresis occurred. In table 1 are shown the results obtained with the various preparations used. The degree of diuresis is divided into three categories: complete loss of edema, partial loss, and no loss. The size of the series of patients treated with corticotropin alone and that of those treated with cortisone alone are similar enough to allow direct comparison. No differentiation has been made between the groups receiving cortisone orally and those receiving it intramuscularly, because no real difference was found. The percentage of instances of completely successful treatment was significantly greater in the cortisone series than in the group treated with corticotropin, and likewise the failures were fewer in the former group. It must be remembered, however, that patients in the corticotropin-treated group, in general, received shorter courses and smaller doses, so that the seeming discrepancy may not be real. A carefully controlled series of courses in which exactly comparable doses of each drug were used has not been undertaken. The apparently smaller proportion of failures in the group treated with corticotropin and cortisone is counterbalanced by a larger proportion of only partial successes. Furthermore, the group is too small to justify a direct comparison of it with the other groups.

When significant diuresis occurred, it most frequently became noticeable after withdrawal of the hormone, but in many instances it began while the drug was still being given. In many patients there was a marked diminution of the output of urinary protein per day during and for a short time after the diuresis, but this was not constant. The total serum cholesterol level usually fell in conjunction with successful therapy and usually was not altered when there was no significant diuresis. The total serum protein level often but not always rose with a brisk diuresis.



Distribution, according to age at onset, of 50 patients with nephrotic syndrome who were treated with corticotropin and/or cortisone.

DURATION OF REMISSIONS AND REPETITION OF TREATMENTS

The duration of the edema-free state following successful treatment has been variable. There were many times when it was very short, lasting only a few days to a few weeks. Twenty-seven per cent of these induced remissions were less than one month in duration. The remaining 73%, however, were longer, 32% lasting between one and two months, 20% between two and three months, and the rest for varying periods up to two years, with some still persisting.

Since relapses have occurred frequently, repeated treatments have been used freely. About a third of the patients have been treated only once, 20% twice, 25% 3 times, and the rest have had greater numbers of courses, one having been treated 13 times. It might have been expected that failure to respond to one course would

TABLE 1.—*Results of Corticotropin and Cortisone Therapy in the Nephrotic Syndrome*

Preparation Used	No. of Courses	Complete Loss of Edema No.	Complete Loss of Edema %	Partial Loss of Edema No.	Partial Loss of Edema %	No Loss of Edema No.	No Loss of Edema %
Corticotropin	63	25	40	16	25	22	35
Cortisone	58	39	67	3	5	16	28
Cortisone and corticotropin	19	11	60	3	16	5	26
Total	140	75	54	22	16	43	30

preclude the possibility of response to subsequent courses and would be an ominous sign with regard to eventual outcome. Actually, there was no consistent pattern in this respect. Of the patients with multiple courses, there were six who never showed a good result after a failure. On the other hand, there were five who did have successes after earlier failures. Two examples of this latter group may be briefly cited. In one case, there was failure in the first three attempts, success on a fourth, failure on a fifth, and three subsequent successes. In a second case, in which there has been a total of 13 courses, all but the 4th and the 10th have been successful. Reasons for such discrepancies are not apparent.

EFFECT ON BASIC DISEASE

The foregoing facts give evidence that symptoms can be relieved at least temporarily in a high percentage of cases of the nephrotic syndrome. After a relatively short experience with such a chronic condition it is impossible to state with assurance whether there is any effect on the basic disease process. The figures we have may, however, show a trend, though further time will be needed to evaluate them fully. Of our group, 13 patients have progressed to either death or apparent recovery (as shown in the figure). By this latter term is meant clearing both of clinical signs and of chemical abnormalities of the urine and blood for a period of at least six months. Though relapses after that time have been known to occur, they are so rare as to be not significant in such an evaluation as this. Of these 13, 9 have died, and 4 have been "cured." Prior to the introduction of this type of treatment, in a group of 73 unselected cases of the nephrotic syndrome at Babies Hospital in which the outcome was known, death occurred in 70%. Thus, the mortality rate of the present small treated group is almost identical to that of the untreated larger group. No certain curative value can be claimed for these hormones at present.

ADJUVANT THERAPY

Since successful results with corticotropin and cortisone treatment occurred in only two-thirds of the instances in which it was used, methods of increasing the effectiveness of this therapy have been sought. Dosage and duration of the course were increased as far as

seemed advisable. Then, following the example of Luetscher and his associate,[4] intravenous injection of concentrated salt-poor human albumin, in doses of 25 gm. a day for three days, was started at about the time that diuresis seemed likely to occur, on the second day following withdrawal of the drug. Because of the difficulty of obtaining this material, it could not be used routinely; therefore, only patients who were expected, on the basis of previous experience, to fail to respond were selected. Such selection was unsatisfactory for reasons that will be pointed out later. For this reason, the experiment is not susceptible of critical evaluation. The results, reported in table 2, suggest that some degree of success was obtained in more than half of those in whom failure had been expected. Thus, the impression was gained that an increase in plasma oncotic pressure at the critical period following hormone therapy may aid in the induction of a diuresis. It is clear, however, that its effectiveness is not great enough to recommend it as a part of routine therapy.

Since the remissions induced have frequently proved to be short-lived, efforts have been made to extend them. Fox's [5] reports and my own observation [6] that some patients could tolerate sodium in a normal fashion immediately after diuresis had been induced led to the hope that a high alkaline sodium intake might maintain the edema-free state. Accordingly, as can be seen in table 2, I gave maintenance doses of about 100 mEq. daily of sodium lactate to a group of patients in whom diuresis had been induced. In more than half, edema eventually recurred. I concluded that such treatment was neither beneficial nor harmful.

TABLE 2.—*Results of Use of Supplementary Therapy with Corticotropin and/or Cortisone in Patients in Whom Failure Was Expected*

Agent	No. of Instances	Apparent Success	Failure
Concentrated salt-poor serum albumin	22	Complete 10 Partial 3	9
Sodium lactate	17	7	10
Small maintenance doses of cortisone	12	2	10

Another attempt at maintaining the edema-free state was based on the theory that the initial effect of these hormones in inducing diuresis might be the result of suppressing some factor elaborated by the pituitary. If this were the case, the administration of small doses of cortisone might continue to suppress this hypothetical factor and so maintain the remission. Table 2 shows the results obtained in a group of children who were maintained on cortisone in doses of 12.5 mg. given three times a day. The early results appeared encouraging, so that I felt justified in persisting, but it is apparent from the figures that relapse eventually occurred in most of these patients.

4. Luetscher, J. A., Jr., and Deming, Q. B.: Treatment of Nephrosis with Cortisone, J. Clin. Investigation **29**: 1576, 1950.

5. Fox, C. L., and McCune, D. J.: Electrolyte Changes in Nephrosis: Occurrence of Diuresis Following Administration of Sodium and Potassium Salts, Am. J. M. Sc. **216**: 1, 1948.

6. Riley, C. M.: Nephrotic Syndrome: Effect of Adrenocorticotrophic Hormone, Pediatrics **7**: 457, 1951.

7. Barnett, H. L., and others: The Effect of Adrenocorticotorphic Hormone on Children with the Nephrotic Syndrome: Physiologic Observations on Discrete Kidney Functions and Plasma Volume, J. Clin. Investigation **30**: 227, 1951.

DANGERS

The hazards associated with the administration of corticotropin and cortisone have not proved to be as grave as was originally anticipated. First and most publicized is the danger of infection. In early trials I attempted to guard against this by giving small "prophylactic" doses of antibacterial agents, but with these doses it was not unusual for infections to occur. Therefore, I am currently using full therapeutic doses of such agents. When infection has occurred in my patients, it has always been easily recognized and has responded promptly to suitable treatment. None of my patients has died from infection that occurred in close time relationship to treatment. Other institutions have reported some instances in which infection appeared to be masked by the therapy and was responsible for death, so this hazard cannot be dismissed lightly.

Second, these hormones may produce blood pressure elevation. I have seen no serious complications from this but have on some occasions seen a mildly elevated blood pressure (120/85 mm. Hg in the younger age group) increase during administration of these hormones to 150/110 mm. Hg. In such cases I have discontinued treatment and the blood pressure has promptly returned to its former level.

Third, Barnett and his associates [7] have shown that renal function may be depressed by the administration of these hormones. I have seen many instances in which the nonprotein nitrogen level in the blood has risen significantly during treatment. Accordingly, I have made it a rule never to initiate treatment if the blood nonprotein nitrogen level is above 70 mg. per 100 cc. If this level is above normal at all, it is checked at frequent intervals. In my series, the only death that occurred in close time relationship to treatment was that of a 3-year-old boy who had had no nitrogen retention before treatment but who had evidence of severe renal disease in the form of persistent gross hematuria. Four days after the beginning of the course infection developed and was readily recognized. Signs of bacterial disease rapidly subsided with the withdrawal of corticotropin and administration of large doses of antibiotics. By the time the infection appeared he had moderate azotemia. This increased quickly, and he died in acute renal failure.

Last, it should be noted that personality changes, although not a hazard, are not unusual with use of these drugs. The children often become depressed, but after withdrawal they regain their good humor and, occasionally, will have voracious appetites.

SELECTION OF PATIENTS

There is a rough correlation between the effectiveness of treatment and the lack of signs of renal damage, but exceptions have occurred so frequently that this has proved to be a poor criterion on which to predict results. There also tends to be an inverse relationship between the duration of the disease and the effectiveness of treatment. Again, the number of exceptions makes this an unsatisfactory criterion. It has already been pointed out that failure of a patient to respond to one or more courses does not necessarily imply that future failures will be encountered in that patient. Thus, there are no reliable

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standards on which to base a prediction as to whether an individual patient will respond favorably to hormone treatment.

SUMMARY

The administration of corticotropin or cortisone is an effective means of inducing a remission in a large proportion of patients with the nephrotic syndrome. Both hormones appear to be equally effective, but the ease of administration of cortisone by mouth makes it the drug of choice. The remissions induced are usually transient but often last long enough to make them of real value in the management of this condition.

Attempts to increase the effectiveness of these hormones or to extend the duration of the induced remissions by the use of various adjuvants are reported. Evidence is not adequate to determine whether concentrated salt-poor human albumin increases the likelihood of a favorable response to the hormones. Prolonged administration of sodium lactate or of small doses of cortisone apparently has not extended the duration of the edema-free state.

The principal dangers of this form of treatment are intercurrent infection, elevation of blood pressure, and depression of renal function. There is no evidence that such therapy alters the basic course of the disease. There are no satisfactory criteria on which to base a prediction as to which patients will respond favorably to treatment.

3975 Broadway (32).

NEW ETIOLOGICAL FACTOR IN ECTOPIC PREGNANCY

Leon Krohn, M.D., M. S. Priver, M.D.
and
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In accepting the benefits of recent advances in the treatment of a disease, the clinician must be thoroughly acquainted not only with the favorable alterations in the clinical course of the condition under treatment but with the undesirable sequelae as well. Since the advent of antibiotics, particularly penicillin, the clinical course of infections of the female pelvic organs has radically changed. The number of patients who have been spared surgery or invalidism is gratifying. Most patients with acute salpingitis or acute postabortal infections, if treated early with penicillin, are left with little or no residual damage. Thus, the incidence of sterility following these infections has been reduced considerably. Several years ago we reported results of the use of intramuscularly administered penicillin in the treatment of a series of patients with chronic endocervicitis.[1] At that time definite improvement was noted in 94.5% of the patients. More recently the response to this treatment, though still good, has not been so dramatic, possibly because penicillin-resistant strains of organisms are developing in many patients as a result of the widespread use of the drug. Since chronic endocervicitis is the commonest cause of sterility in the female,[2] it naturally follows that many patients who are infertile might become pregnant following use of this therapy (in our series 51% conceived). Many of these patients with chronic cervicitis have associated parametritis and salpingo-oophoritis, which, in most instances, also improves with penicillin therapy. We have observed tubal patency after penicillin therapy in some cases in which the tubes were closed before the treatment, as evidenced by hysterosalpingography and patency tests.

During the time this study was being conducted, we became aware of an increasing number of cases of ectopic pregnancy among the patients under our observation. A preliminary investigation of this problem was made and reported by one of us (L. K.) along with this possible explanation [3]: It is conceivable that improvement following penicillin therapy may result in reopening of a previously nonpatent tube, while considerable residual damage remains. Eastman,[4] in an erudite discussion of this subject, offers a similar explanation. He suggests that inadequate antibiotic therapy, or therapy administered after the development of irreversible structural changes in the endosalpinx, might increase the occurrence of ectopic gestation, through prevention of tubal occlusion. It is well known that any factor that will delay or prevent the passage of a fertilized egg into the uterine cavity may result in tubal pregnancy.[5] The commonest of these factors, inflammatory disease, produces changes in the tubal epithelium with impairment of ciliary activity, or changes in the muscularis or serosal surface of the tube, interfering with normal peristalsis.

In the past, the most commonly quoted incidence of ectopic pregnancy was Schumann's rate of 1 in 303 pregnancies.[6] A study of the figures at the New York Lying-In Hospital between 1931 and 1945 similarly disclosed one ectopic gestation for every 268 pregnancies.[7] Reports are now appearing in the literature calling attention to an increased incidence of ectopic pregnancy in recent years. Anderson [8] analyzed all ectopic pregnancies occurring in the city of Baltimore between 1944 and 1948, and his

Read before the Section on Obstetrics and Gynecology at the 101st Annual Session of the American Medical Association, Chicago, June 10, 1952.

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7. Stander, H. J.: Textbook of Obstetrics Designed for the Use of Students and Practitioners, Stander's ed. 3, New York, D. Appleton-Century Company, Inc., 1945.

8. Anderson, G. W.: The Racial Incidence and Mortality of Ectopic Pregnancy, Am. J. Obst. & Gynec. **61**: 312-320 (Feb.) 1951.

9. Campbell, R. M.: The Diagnosis and Management of Ectopic Pregnancy, Am. J. Obst. & Gynec. **63**: 54-62 (Jan.) 1952.

final corrected figure was 1 in 167 births. Campbell's [9] similar study of four Seattle hospitals from 1940 through 1950 revealed an almost identical figure of 1 ectopic pregnancy to each 165 live births. Beacham and his colleagues [10] reviewed the ratio of ectopic pregnancies to deliveries at the New Orleans Charity Hospital for the four years 1947 to 1950, inclusive, and found it to be 1:126. These authors state that it is logical to believe that sulfonamides, penicillin, and other antibacterial agents have influenced the incidence of tubal gestation.

The purpose of this communication is to report a study of 55 cases of ectopic pregnancy occurring during the three years 1949 through 1951, in an attempt to evaluate the influence of penicillin. We would also like to present an analysis of examinations of the endometrium and biological tests for pregnancy performed on a group of patients with known ectopic pregnancy operated on at the Cedars of Lebanon Hospital during the past 10 years.

Of the 55 patients with ectopic pregnancy, 18 were encountered in our own private practice and 37 were operated on by others at the Cedars of Lebanon Hospital. During the years 1949, 1950, and 1951, there were 6,859 live births at the Cedars of Lebanon Hospital and 53 proved ectopic pregnancies. This is an incidence of 1 in every 129 births. During the same three year period, we delivered 994 private patients and operated on 18 patients with ectopic pregnancy. This is a ratio of 1 to 55 in our own private practice (as compared to an incidence of 1 to 207 ten years ago).

In 24 of 55 cases of ectopic pregnancy there was a definite history of penicillin therapy administered prior to the development of the ectopic pregnancy. In breaking down these figures further, we found that 16 of our own 18 patients with ectopic pregnancy had received penicillin, whereas only 8 of the 37 remaining patients gave such a history. This fact may well account for the much higher incidence of ectopic pregnancies in our own private practice, as compared to the incidence in the total number of such patients operated on at Cedars of Lebanon Hospital. As previously mentioned, we first noticed the decided increase in the number of ectopic pregnancies we encountered while treating a series of patients with chronic endocervicitis with intramuscularly administered penicillin. If we were to eliminate the number of live births and ectopic pregnancies in our own practice from the total cases admitted to Cedars of Lebanon Hospital during the three years being studied, the altered incidence of ectopic pregnancies among the 5,865 births attended by other physicians would be 1 to 158, which ratio very closely approximates the figures recently released by the similar studies in other institutions.

When one is confronted with the problem of making a diagnosis of ectopic pregnancy, particularly before rupture, it is common practice to do one of the accepted biological tests for pregnancy. It is also frequently desirable to do a bimanual pelvic examination with the patient under anesthesia, and a diagnostic curettage, to determine the presence or absence of decidual tissue without chorionic villi. In 142 patients with ectopic pregnancy operated on at the Cedars of Lebanon Hospital during the past 10 years, 58 biological tests for pregnancy were done, and results were positive in 41 and negative in 17. Thus, although a positive pregnancy test is significant, obviously a negative test does not rule out ectopic pregnancy. The endometrium was examined in 42 of the authors' cases. Decidual changes were found on 17 occasions, the remaining 25 specimens showing no evidence of any existing pregnancy. Romney, Hertig, and Reid,[11] at Harvard University, studied the endometrium in 115 cases of ectopic pregnancy and found that in 93 (over 75%) of these cases, the endometrium was indistinguishable from that of nonpregnant women in comparable phases of the menstrual cycle. In other words, the absence of decidua does not rule out existing ectopic pregnancy. Our limited study confirms this fact.

SUMMARY AND CONCLUSIONS

In patients with damaged but patent tubes, tubal pregnancy is more likely to develop. Tubal occlusion may be prevented or converted to patency in patients with diseased tubes as a result of penicillin therapy. Since the advent of antibiotics, the reported incidence of ectopic pregnancy in various areas of this country has approximately doubled. The incidence of ectopic pregnancy in our own private practice is approximately three times as great as in those patients attended by other physicians at the Cedars of Lebanon Hospital during the same period. Furthermore, it is almost four times greater than the incidence that we encountered in private practice 10 years ago, prior to the use of penicillin. This difference in the incidence ratio appears to be directly related to the number of patients who received penicillin prior to the development of the ectopic pregnancy. Penicillin therapy in pelvic inflammatory disease may be an important etiologic factor in ectopic pregnancy.

436 N. Roxbury Dr., Beverly Hills, Calif.

10. Beacham, W. D., and others: Ectopic Pregnancy, J. Missouri M. A. 48:629-633 (Aug.) 1951.
11. Romney, S. L.; Hertig, A. T., and Reid, D. E.: Endometria Associated with Ectopic Pregnancy: Study of 115 Cases, Surg., Gynec. & Obst. 91:605-611 (Nov.) 1950.

Contraindications to Use of Diathermy.—Diathermy is contraindicated in all acute processes associated with fever, suppuration or other local evidences of acute inflammation, including edema. Because diathermy increases regional blood flow, its application aggravates already present edema and congestion. Therefore, it increases the pain and disability when used during the early stages of trauma, sprains, fractures and in acute bursitis and arthritis. Diathermy is to be avoided during hemorrhage, even during profuse menstruation, and should not be applied over the lower back during pregnancy. It is contraindicated when cancer is present.

In the use of all forms of thermotherapy it is important to remember that there is real danger of bringing about disastrous results if even moderate degrees of heat are locally applied to the extremities of patients suffering from impaired peripheral circulation. When arterial flow is obstructed or impaired the use of even mild local heating causes an increased metabolic demand, which calls for more oxygen than can be delivered through the inadequate arterial flow. This creates a relative ischemia, with its attendant pain, edema, ulceration and even gangrene. Local heat is equally contraindicated in obstructive lesions of the peripheral venous circulation. As long as the arterial channels are open the demand for increased blood created by heating can be met. However, the inadequate venous return flow so interferes with the cooling and heat dissipation that the local tissue temperature rises to a point that causes edema, ulceration and pain. —George Morris Piersol, M.D., Therapeutic Application of Heat: Its Uses and Abuses, *The New England Journal of Medicine*, Sept. 4, 1952.

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WHAT THE CLINICIAN SHOULD KNOW ABOUT ELECTROMYOGRAPHY

O. Leonard Huddleston, M.D., Ph.D., Santa Monica, Calif.

Electromyography is a recognized clinical procedure that supplies laboratory information to assist the physician in making a diagnosis, outlining a treatment program, and formulating a prognosis for the various disorders of the neuromuscular system.[1] The instrument used is called an electromyograph.[2] It is designed specifically for the detection of electrical potentials associated with the activity of skeletal muscle fibers. It is imperative that the proper selection of equipment and techniques should be made in order to obtain reliable information regarding any electrical disturbance of the lower motor neuron or muscular system. This requires the use of needle electrodes, a cathode ray oscillograph, an optical and sound recording system, and a loud-speaker audio system. The curves exhibited or recorded by the electromyograph represent electrical potentials associated with motor activity of skeletal muscles. As a rule the monopolar technique is employed, consisting of a dispersive electrode (percutaneous) that is affixed to the skin by means of an elastic or rubber strap. A paste or jelly possessing suitable abrasive and conductive properties is interposed between the electrode and the skin to lower the skin resistance and provide good conduction. A specially insulated needle electrode is inserted directly into the muscle tissue.

The electrodes pick up the electrical variations from the muscle fibers and transmit them to a high-gain amplifier that conducts the electrical potentials to a cathode ray tube, where they may be observed or recorded. As a rule they are fed into a loud-speaker system simultaneously, making it possible to hear and see the electrical oscillations at the same time. The amplified electrical oscillations may be recorded by photographing the curves exhibited on the screen of the cathode ray tube or by transcribing them on the magnetic tape recorder. The electrical activity of muscle fibers may arise directly from altered electrical behavior of the muscle fibers themselves or indirectly from nerve impulses transmitted to them by cranial or spinal nerves. The curves exhibited are known as electrical voltage curves or waves. They possess specific characteristics for both normal and abnormal nerves and muscles.

The electromyographic characteristics of normal nerves and muscles are shown in figure 1. They consist of simple motor unit voltages usually made of diphasic spike potentials, which at times may be monophasic or triphasic. These occur during voluntary effort. When the muscle fibers are at rest, they are electrically silent and the oscilloscope shows an isoelectric base line, and no sound is heard in the loud-speaker system. The electromyographic characteristics of lower motor neuron lesions are shown in figure 2 and may be listed as follows[3]: 1. Fibrillation voltages are associated with denervated muscle and are present both at rest and during voluntary effort. 2. Complex motor unit voltages are usually associated with either denervation or reinnervation. They are multiphasic in form and occur during voluntary effort. 3. Fasciculation voltages are complex motor unit waves that may be observed during rest and usually signify irritation of the central nervous system. These, too, may be associated with either partially denervated or partially reinnervated muscles. 4. Base line disturbances are low-voltage, rounded curves of relatively long duration. They are associated with partially denervated muscle and are usually the first to reappear when regeneration begins in completely denervated muscles. Fibrillation voltages, complex motor unit voltages, and base line disturbances are usually pathognomonic of pathological conditions of the neuromuscular system involving lower motor neuron lesions.

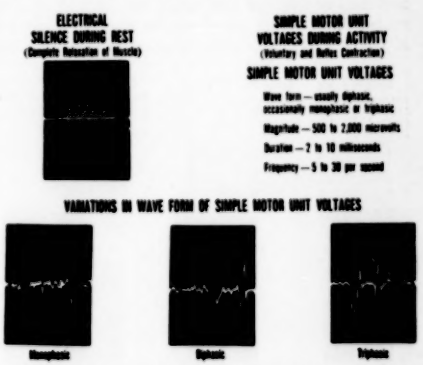
ELECTRICAL
SILENCE DURING REST
(Complete Relaxation of Muscle)
SIMPLE MOTOR UNIT
VOLTAGES DURING ACTIVITY
(Voluntary and Reflex Contraction)
SIMPLE MOTOR UNIT VOLTAGES
Wave form — usually diphasic, occasionally monophasic or triphasic
Magnitude — 500 to 2,000 microvolts
Duration — 2 to 10 milliseconds
Frequency — 5 to 30 per second
VARIATIONS IN WAVE FORM OF SIMPLE MOTOR UNIT VOLTAGES
Monophasic
Diphasic
Triphasic

Fig. 1.—Typical electromyograms of normal skeletal muscle obtained with use of monopolar needle electrode and oscillograph technique.

The normal neuromuscular system shows complete electrical silence during rest and simple motor unit voltages during voluntary effort. Completely denervated muscle shows only fibrillation voltages both at rest and during voluntary effort, whereas partially denervated muscle may show a mixture of electrical silence, fibrillation, and/or fasciculation voltages during rest and a mixture of simple and complex motor unit voltages during voluntary effort. Characteristic sounds are emitted by the loud-speaker whenever a normal or abnormal

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Resident Medical Director, Kabat-Kaiser Institute, Santa Monica, Calif., and Professor of Physical Medicine, University of Southern California School of Medicine, Los Angeles.

1. Huddleston, O. L., and Golseth, J. G.: Electromyographic Studies of Paralyzed and Paretic Muscles in Anterior Poliomyelitis, Arch. Phys. Med. **29**: 92 (Feb.) 1948.

2. Golseth, J. G., and Huddleston, O. L.: Electromyographic Diagnosis of Lower Motor Neuron Disease, Arch. Phys. Med. **30**: 495 (Aug.) 1949.

3. Huddleston, O. L.; Austin, E., and Marinacci, A. A.: Diagnostic Features of Electromyography, Arch. Phys. Med. **32**: 579 (Sept.) 1951.

electrical potential develops and are of great assistance in the identification and interpretation of the waves appearing on the screen of the cathode ray tube.

The recognition and the evaluation of the electrical behavior of normal muscles and of those showing lower motor neuron lesions giving rise to partial or complete denervation form the basis of electromyographic differentiation of various disorders of the neuromuscular system. The presence of fibrillation voltages indicates a lower motor neuron lesion and is interpreted as indicative of denervation of the muscle fibers being sampled at that particular time. Simple motor unit voltages signify the presence of normally innervated skeletal muscle fibers. Fasciculation voltages usually signify the presence of some irritative phenomena of the nervous system, and the complex motor units that occur during voluntary effort are usually interpreted as evidence of partial denervation or reinnervation. Using the characteristics of normal and of lower motor neuron lesions, other types of paralysis may be identified by a process of elimination.

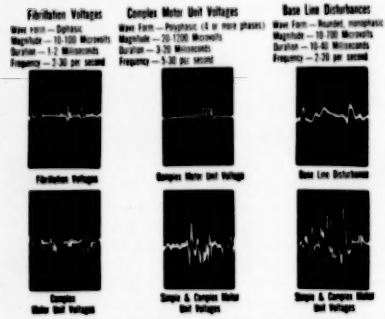

Fig. 2.—Electromyograms showing typical abnormal voltage waves that may be observed during voluntary effort in various neuromuscular disorders involving the lower motor neuron system.

The indications for the use of electromyography are those conditions of the neuromuscular system in which qualitative and quantitative information is desired.[4] It is used in the examination of disorders that manifest weakness or paralysis of skeletal muscles. The term paralysis is used to signify the loss of voluntary contraction of skeletal muscle. The failure of the contraction of skeletal muscles in response to voluntary effort may be caused by several conditions, such as abnormalities of the muscle fibers themselves, abnormal function of the neuromuscular junctions, lower motor neuron lesions of various kinds, transection of the spinal cord, abnormal synaptic block, upper motor neuron lesions, and abnormal cortical function.

Electromyography may be used as a laboratory instrument to assist in a differential diagnosis of a number of medical conditions manifesting a paresis or paralysis of skeletal muscles. Some of these differential diagnoses may be grouped as follows: (1) lower motor neuron lesions (peripheral nerve injuries, primary muscular atrophy, anterior poliomyelitis) and upper motor neuron lesions (multiple sclerosis, cerebral palsy, hemiplegia, brain tumor, cerebral hemorrhage); (2) primary muscular atrophies and primary muscular dystrophies; (3) disuse atrophy and denervation atrophy; (4) organic paralysis and functional paralysis (hysteria); (5) abnormal synaptic block ("alienation" or reflex inhibition); and (6) chronic postural strain, as faulty body mechanics, and nerve-root compression lesions. Electromyographic examination of the muscles of patients with neuromuscular disorders exhibiting weakness, paralysis, and muscular atrophy may be helpful, therefore, to physicians in establishing a positive diagnosis where there is a question of differentiating between one or more neuromuscular disorders.

Some other conditions in which electromyography may be used are (1) in the diagnosis and evaluation of myasthenia gravis; (2) in the diagnosis and prognosis of myotonia atrophica; (3) in the diagnosis of amyotrophic lateral sclerosis, primary lateral sclerosis, cord tumor, and syringomyelia; (4) in determining the level or location of a spinal cord lesion or nerve-root compression; (5) in establishing the degree of degeneration and regeneration of nerves of peripheral nerve injuries or of anterior poliomyelitis; (6) in patients suspected of having intervertebral disks, with the electromyographic findings used to supplement those of the myelogram; (7) in assessing the presence or absence of peripheral nerve regeneration and also in assessing the rate of recovery of lower motor neuron lesions of various kinds, particularly in peripheral nerve injuries (information that is extremely useful to neurologists, neurosurgeons, and orthopedic surgeons as well as to others responsible for the care of patients with peripheral nerve injuries); and (8) in securing objective evidence for medicolegal cases, such findings being accepted as reliable scientific evidence in civilian courts or by military retirement boards and Veterans Administration adjudication boards.

SUMMARY

Electromyography is a useful laboratory procedure that is used to assist the physician in establishing a diagnosis, prognosis, and treatment of numerous disorders of the neuromuscular system and is of great assistance in the management of peripheral nerve injuries associated with traumatic injuries, fractures, lacerations, neuromas, and compression lesions of various kinds. It is particularly helpful in the differential diagnosis involving muscular paralysis, paresis, or atrophy of skeletal muscles and may be employed to obtain reliable qualitative and quantitative data for use in civilian courts and retirement and adjudication boards. Electromyographic service is usually supplied by departments of physical medicine in the larger medical centers or by physiatrists and neurologists in private practice.

1815 Ocean Front.

4. Huddleston, O. L.; Golseth, J. G.; Marinacci, A. A., and Austin, E.: The Use of Electromyography in the Diagnosis of Neuromuscular Disorders, Arch. Phys. Med. 31: 378 (June) 1950.

CLINICAL NOTES

SCLEROSING LIPOGRANULOMA

REPORT OF TWO CASES

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In 1950, Smetena and Bernhard[1] reported 14 cases of subcutaneous lipogranuloma; they used the term "sclerosing lipogranuloma" as a descriptive name. They felt that these cases, in which the process was localized and frequently followed trauma, could be separated from other recognized entities, such as Weber-Christian disease, traumatic fat necrosis of the female breast, adiponecrosis subcutanea neonatorum, and changes in the lung following aspirations of oils and fats. This separation was accomplished by showing differences in clinical features of the diseases and occasionally by histological features in the tissues.

Spencer,[2] in 1949, described a case of "fat necrosis" of the omentum that followed a blunt injury to the abdomen. In this patient, there was a mass in the left lower quadrant simulating carcinoma of the colon. This mass was resected and was similar histologically to the lesions described by Smetana and Bernhard.[1] The lesion did not recur. We will now discuss two additional cases; the first involves the scrotum, penis, and abdominal wall, and the second involves a pelvic lipogranuloma that developed after repeated pelvic laparotomies.

REPORT OF CASES

CASE 1.—A 52-year-old white man had learned to aspirate a left-sided hydrocele that he had noted for about 25 years. He carried out this procedure three or four times each year. In November, 1950, after aspiration of the hydrocele, soreness in the scrotum developed, and a large mass quickly formed. The left testicle was removed, but the mass remained. Early in 1951, this process extended over the abdominal wall as high as the nipple line. Biopsy reports were consistent with Weber-Christian disease, but the patient had no fever. A course of x-ray therapy resulted in little or no improvement.

In August, 1951, this patient came under the observation of one of us (B. T. G.). Examination revealed recent weight loss and a large, nonfluctuant, nontender, scrotal mass measuring 20 by 12 by 12 cm. (fig. 1). Over the anterior abdominal wall were large, irregular, subcutaneous, firm, slightly tender, contiguous masses. There was no increase in local temperature in the area of these lesions. In some areas the skin was fixed to the underlying subcutaneous fat, and the tissues were inelastic. This kept the patient at bed rest most of the time. Laboratory studies revealed nothing remarkable.

Biopsy of the scrotal mass was read as consistent with sclerosing lipogranuloma. The patient was treated with cortisone (300 mg. the first day, 200 mg. the second day, and 100 mg. each day thereafter) for about one month without complications. Within a week, there was striking objective improvement in the lesions. The induration of the upper abdominal wall was markedly reduced, and the skin became softer and more pliable. There was less improvement over the lower abdominal wall, and the scrotal mass was not affected. Subjective improvement was even more striking. The patient's appetite became voracious, and he was ambulatory most of the day.

When cortisone dosage was reduced to 50 mg. daily, after the first month, there was prompt loss of objective improvement. The skin of the upper abdominal wall became fiery red, and the induration returned. After this exacerbation, the patient was again given cortisone, 100 mg. daily for seven days, but the improvement was much less dramatic. Cortisone therapy, 75 mg. daily, was continued. Surgical excision of the scrotal mass and right testicle was carried out on Nov. 24, 1951, and the wound healed by primary intention (fig. 1*B*).

Cortisone therapy was continued uninterruptedly, with gradual reduction of dosage to 50 mg. daily until the middle of January, 1952. Subjective improvement continued, but objective improvement was slight, although the patient remained ambulatory. The psychotherapeutic effects of treatment undoubtedly contributed to the subjective improvement.

The scrotal mass was ovoid and irregular, measuring 15 by 9 by 8 cm. The cut surface was mottled grey and yellow in color and was not greasy. No fluid exuded. Small blood vessels were numerous, but the tissue was not filled with blood. The tissue was firm, and the overlying skin was adherent. The testicle was normal and was easily dissected from the mass.

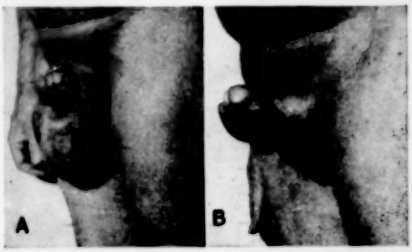

Fig. 1. *A* (case 1).—Scrotal mass following cortisone therapy. The reaction in the lower abdominal wall has subsided. *B* (case 1).—Postoperative result.

Microscopic sections revealed dense hyaline fibrosis throughout the dermis and subcutaneous tissue, to which the epithelium was fused (fig. 2). Many fat globules of varying size were trapped in this tissue. The spaces containing fat were often lined by macrophages and scattered giant cells that had engulfed small globules of lipoid material. Sudan III stains on frozen sections fixed in 4% formaldehyde solution identified the foreign material as fat.

CASE 2.—A 45-year-old white woman was first admitted to Kennedy Veterans Administration Hospital on Nov. 20, 1950, with complaints of recurrent cramping pain in the left lower quadrant, abdominal fullness, and increasing constipation. She had undergone numerous operations, including hysterectomy and right salpingo-oophorectomy in 1930, left salpingo-oophorectomy in 1933, and exploratory laparotomies in 1940, and October, 1950. Many adhesions had been encountered during the laparotomies and a biopsy report in 1950 was interpreted as "adenocarcinoma." The patient entered this hospital for x-ray therapy. There was no history of introduction of iodized oil (lipiodol®) or similar oils into the fallopian tubes.

The significant findings of a physical examination were moderate tenderness of the left lower quadrant and a small, irregular mass in this area, which was felt on pelvic examination. Proctoscopic examination revealed sharp angulation of the colon at

From the McAlester Clinic (Dr. Galbraith); from the Laboratory Service, Veterans Administration Medical Teaching Group, Kennedy Hospital, (Dr. Young).

1. (*a*) Smetana, H. F., and Bernhard, W.: Sclerosing Lipogranuloma: Preliminary Report, South. M. J. **43**: 702-707, 1950. (*b*) Smetana, H. F., and Bernhard, W.: Sclerosing Lipogranuloma, Arch. Path. **50**: 296-325 (Aug.) 1950.

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the rectosigmoid junction, and a barium enema showed no intrinsic lesion in the bowel. When the biopsy slides were reviewed, the true granulomatous nature of the disease process was apparent, but the patient still believed she had cancer. She underwent x-ray therapy elsewhere, without relief of symptoms.

She returned to the hospital in May, 1951, with essentially the same complaints and same findings. She repeatedly requested surgery, and laparotomy finally was performed. There were many adhesions in the upper abdomen, and scattered whitish flecks were seen over the serosal surface of the small bowel. There were adhesions between loops of the small bowel, the sigmoid, and the bladder, and, when these were separated, a dense, scarred, greyish-white mass was found in the mesosigmoid. Other smaller, similar masses were found in the cul-de-sac. The larger ones were removed; the sigmoid was suspended in a more normal position; and a presacral neurectomy was performed. The patient made an uneventful recovery and was relieved for several months; however, more small pelvic masses have developed lately, and she still has a cancer phobia.

There were 13 irregular pieces of dense, gray, fibrous, fatty tissues, the largest measuring 3.6 by 2.5 by 1.4 cm. These offered resistance when they were cut. Routine sections, stained by hematoxylin and eosin, revealed small and large cystic spaces in the tissue. These were surrounded by histiocytes and macrophages filled with lipoid material. Foreign body giant cells were common, and throughout the tissue a dense fibrous stroma was present (fig. 3). Sudan III stains on frozen sections of tissue fixed in 4% formaldehyde solution identified the material free in the tissues and in the lipophages as fat.

Fig. 2 (case 1).—Photomicrograph of skin of scrotum (× 100, hematoxylin-eosin method. Note the large spaces previously occupied by fat and marked fibrosis.

COMMENT

The clinical management of cases of sclerosing lipogranuloma presents many problems. In none of the cases reported by Smetana and Bernhard [1] was there complete, spontaneous healing, even after many years. Complete surgical excision, when possible, gave the best results. In the patient discussed in case 1, cortisone therapy, although helpful, gave only temporary results. X-ray therapy did not benefit either of our patients.

The case reported by Spencer [2] demonstrates that this lesion is not always limited to the subcutaneous tissues.

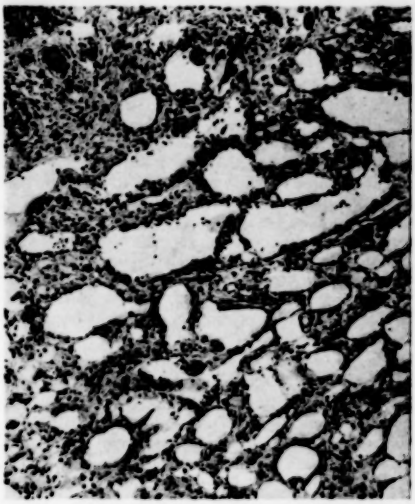

Fig. 3 (case 2).—Photomicrograph of pelvic lipogranuloma (100 ×, hematoxylin-eosin method). Again note spaces, fibrosis, and numerous giant cells.

Our patient (case 2) with the pelvic lipogranulomatosis gave no history of introduction of oils into the pelvis, but her history is involved, and the possibility exists.

The pathogenesis of sclerosing lipogranuloma is not entirely clear. After injury to fatty tissues there is necrosis of the fat cells and liberation of fat globules into the tissues; here, the fat acts as a foreign body that attracts macrophages. The persistence of the local reaction and its progression to other tissues is not understood. Increased liberation of fat occurs as the process spreads. Local ischemia probably plays a role in some cases, notably in subcutaneous fat necrosis in the newborn infant.[3] In addition to trauma and local ischemia, other mechanisms, such as allergy, inflammation, and local toxic influences have been suggested. This problem is fully discussed by Smetana and Bernhard,[1b] who conclude that the most usual sequence is trauma followed by local shock and ischemia and then necrosis of fatty tissue and liberation of fat.

SUMMARY

Two cases of sclerosing lipogranuloma are discussed. Both patients failed to respond to x-ray therapy, and one obtained temporary benefit with cortisone therapy. Surgical excision, when applicable, is the procedure of choice.

3. Holzel, A.: Subcutaneous Fat Necrosis of Newborn, Arch. Dis. Childhood **26**: 89-91 (Feb.) 1951.

ADDENDUM

Since this article was accepted for publication the patient discussed in case 1 has continued to improve. He is now out of the hospital and is more active than he has been in two years. Although the disease is still present, it has not progressed. What part his castration in December, 1951, might play in his improvement is speculative.

Third and Seminole (Dr. Galbraith).

NEW ROENTGENOGRAPHIC TECHNIQUE IN BRONCHIAL ASTHMA

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During the past two years, we have been utilizing a technique of making roentgenographs of the chest in asthmatic persons that has given us considerable information concerning the pulmonary function of the patient. In this report we wish to present this method and to elaborate on some of the results obtained from it.

TECHNIQUE AND RESULTS

The first roentgenograph is taken during forced inspiration. Immediately after, a second roentgenograph is taken in deep expiration, the patient remaining in exactly the same position. The roentgenographs are then superimposed one on the other and studied comparatively. In placing the second film upon the first, the spinal column, especially the first dorsal vertebra, serves as a guide; the outline of the vertebral body and of the transverse processes can be clearly distinguished. Once they have been correctly superimposed, the changes of the diaphragm, ribs, and clavicles occurring during expiration are sketched on the roentgenograph that was taken during forced inspiration.

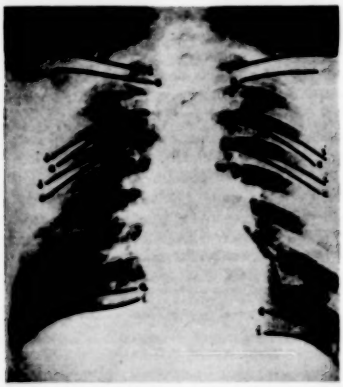

Fig. 1.—Roentgenogram showing limitation of diaphragmatic movements and compensatory increase in movements of clavicles.

In normal subjects the movement of the diaphragm prevails over that of the ribs and clavicles. In asthma, various types of respiration can be noted.

Fig. 2.—*A*, limited expansion of thorax and adequate movement of diaphragm, "pump-like respiration." *B*, marked restriction of the diaphragmatic and rib movements, "clavicular respiration."

1. *Asthma Without Complications.*—Most frequently the movements of the diaphragm are either diminished or completely eliminated (fig. 1). There is a compensatory increase in the movements of the ribs. Furthermore, we note more extensive movements of the clavicles, which indicate that the complementary respiratory muscles are brought into play. This is especially noticeable when there is obstruction in the lungs and marked distention. In a second group, the expansion of the thorax is limited; whereas, the movement of the diaphragm is maintained. This action is suggestive of a piston in a pump ("pump-like respiration") as illustrated in figure 2*A*. In these cases, there is always a complementary increase in the movement of the clavicles. Rigidity of the thorax as well as bronchial obstruction accounts for this type of breathing. In a third group, the movements of the diaphragm and the ribs are markedly restricted, as indicated in figure 2*B*. Here the complementary muscles are brought into play and clavicular respiration takes place. We can thus determine the extent of rigidity of the thoracic cage and the degree of obstructive emphysema and of diaphragmatic excursion in asthma. This makes it possible to regulate our treatment according to the state of respiratory function in each individual case.

2. *Complications in Allergic Asthma.*—Partial bronchial obstruction gives rise to emphysema, complete obstruction to atelectasis. A careful study of the x-ray photographs will reveal the extent to which the obstruction has developed. Westermarck,[1] following Laurell's method of taking x-ray photographs during the phases of positive and negative pressure, demonstrated how it is possible to determine structural changes in the lungs by comparing both types of photographs. Portions of the lungs affected by emphysema frequently exhibit the shape of a cluster of grapes formed by vesicles in which no vascular structures can be seen; their outline is convex. The adjoining pulmonary areas exhibit atelectasis; they appear streaked, nodular, and garland-shaped. Our

From the Institute for Medical Investigation, University of Madrid.

1. Westermarck, N.: Roentgen Studies of the Lung and Heart: A Series of Lectures Delivered at the Center for Continuation Study, Minneapolis, University of Minnesota Press, 1948.

method of studying the inspiratory and expiratory phase of respiration is of great assistance in interpreting this condition (fig. 3).

If there is a generalized obstruction throughout the bronchial tree, the upper portions of the lungs reveal, in expiration, a shadow that is less dense than would otherwise be expected. This fact might seem paradoxical, but we have observed it on many occasions. Its mechanism can be explained on the following basis. Expiration is impaired by bronchial obstruction. Since the lower portions of the lungs can expel air during expiration more effectively than the upper ones, the air is driven from the lower areas into the upper ones. In pulmonary edema and congestion the reverse occurs. Here the density increases during expiration and diminishes in inspiration. These findings are transitory and can be influenced by cardiac medication, especially by mercurial drugs. The diagnosis of interstitial fibrosis is not difficult by our method. It becomes more complicated when edema is present in combination with fibrosis. Here the inspiratory phase of respiration is relatively little impaired.

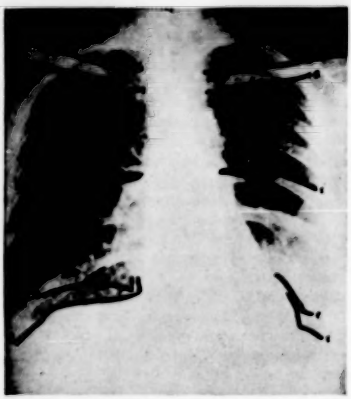

Fig. 3.—Partial obstruction of a bronchus in right lower lobe. Garland formation in area of atelectasis, and marked restriction of diaphragmatic excursions, especially at right.

SUMMARY

A new radiological technique is presented, which has proven to be of great value to us. It consists of taking two x-ray photographs, one in forced inspiration, the other in expiration. Placing one film on top of the other permits the recording of the expansion of the diaphragm, the ribs, and the clavicles. Through this simple and rapid method, we can determine the mechanism of respiration and the participation of each factor involved. We may recognize the presence of bronchial obstruction, emphysema, atelectasis, congestion and edema, and fibrosis. More details can be obtained than with single x-ray photographs. This procedure, we believe, is of particular importance in individualizing our treatment according to the pathological conditions at hand.

General Mola, 9.

"PARADOXICAL" BRAIN ABSCESS

REPORT OF A UNIQUE CASE IN ASSOCIATION WITH LUTEMBACHER'S SYNDROME

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and
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For a time after it was first reported, in 1814,[1] the development of brain abscess in patients with cardiac septum patency but without any of the commonly recognized sources of cerebral suppuration seemed so inexplicable that they came to be designated as "paradoxical." This term must now be regarded as faulty, in view of an explanation of the pathogenesis, though it is still useful for descriptive purposes, having ample historical support. Further, not only are these abscesses not paradoxical but they are not so rare as has been assumed. Though most textbooks still give them only slighting reference, they have been dealt with in a number of recent contributions.[2] Sancetta and Zimmerman,[2d] who in 1950 found 42 cases in the literature and reported two more of their own, expressed the belief that this complication was fully one-quarter as common in congenital heart disease as bacterial endocarditis and advised that it be considered in the diagnosis of all young patients with septal defects who have central nervous system signs or symptoms. Maronde [2c] recently recorded a study of 209 cases, studied post mortem, of congenital cardiac disease of which septum patencies were a feature. Of the 81 subjects 2 years of age or older at the time of death, 14 had brain abscesses unassociated with bacterial endocarditis. One of these patients had pulmonary suppurative disease as the probable origin of the abscess, but the remaining 13 had no such source; in the latter group, the requirements of the "paradoxical" abscess category are met. Only two of these cases had been previously reported.

Recently, seven more cases have appeared,[3] and a superficial inspection of the literature reveals two other cases seemingly not included in recent aggregations. One of these [4] concerns an 11-year-old boy with pulmonic stenosis and foramen ovale patency who died of a left temporoparietal abscess. The other case [5] involved a 57-

1. Farre, cited by Gates, E. M.; Rogers, H. M., and Edwards, J. E.: Syndrome of Cerebral Abscess and Congenital Cardiac Disease, Proc Staff Meet., Mayo Clin. **22**: 401-412, 1947.

2. (*a*) Cohen, I.; Bergman, P. S., and Malis, L.: Paradoxic Brain Abscess in Congenital Heart Disease, J. Neurosurg. **8**: 225-231, 1951. (*b*) Gates, Rogers, and Edwards.[1] (*c*) Maronde, R. F.: Brain Abscess and Congenital Heart Disease, Ann. Int. Med. **33**: 602-606, 1950. (*d*) Sancetta, S. M., and Zimmerman, H. A.: Congenital Heart Disease with Septal Defects in Which Paradoxical Brain Abscess Causes Death: Review of the Literature and Report of 2 Cases, Circulation **1**: 593-601, 1950. (*e*) Gluck, R.; Hall, J. W., and Stevenson, A. D.: Brain Abscess Associated with Congenital Heart Disease, Pediatrics **9**: 192-203, 1952.

3. Beller, A. J.: Syndrome of Brain Abscess with Congenital Cardiac Disease: Report on a Case with Complete Recovery, J. Neurosurg. **8**: 239-243, 1951. Sweeney, D. B., and Patton, W. B.: Surgical Management of Cerebral Abscess Associated with Congenital Heart Disease, South. M. J. **43**: 799-802, 1950. Cohen, Bergman, and Malis.[2a] Gluck, Hall, and Stevenson.[2e]

4. Currens, J. H.; Kinney, T. D., and White, P. D.: Pulmonary Stenosis with Intact Interventricular Septum: Report of 11 Cases, Am. Heart J. **30**: 491-510, 1945.

5. Paul, C.: Du rétrécissement de l'artere pulmonaire, Bull. Soc. Méd. de Hop. Paris **8**: 45, 1871; cited by Selzer, A., and others: The Syndrome of Pulmonary Stenosis with Patent Foramen Ovale, Am. J. Med. **6**: 3-23, 1949.

year-old woman with a similar cardiac anomaly who died of brain abscess in an unspecified location. To what degree this figure of 64 described cases fails to reflect the true incidence can only be surmised, for an unknown number of patients die of abscess without postmortem correction of an antemortem diagnosis of cerebral embolism, owing to the fact that a certain proportion of abscesses fail to give systemic evidence of sepsis or spinal fluid evidence of increased pressure or inflammatory reaction.

We wish to describe what is possibly the 65th reported instance of such an abscess, unique in that the patient has had two cerebral abscesses located in opposite hemispheres of the brain separated by an interval of six years. Further, both abscesses were diagnosed ante mortem and were treated surgically and the patient, at the time of writing, was still alive.

REPORT OF A CASE

B. S., a 38-year-old white married woman, was first seen on Oct. 12, 1950, with chief complaints of progressive aphasia, confusion, headaches, and low grade fever.

She had been well, except for an attack of scarlet fever at age 2 or 3, until the age of 4, when a pulmonary infection diagnosed as pneumonia developed, after which she remained cyanotic for a time. After her recovery from this pneumonic illness, the cyanosis subsided and she made a good physical adjustment, living an active life with but slight disability until the age of 21, when dyspnea, palpitation, and hypotension made their appearance. At the age of 24 an abscess in the region of the sternum was drained. When the patient was 32 a physical examiner noted that she was very thin, dyspneic, and slightly cyanotic, with questionable clubbing of the finger tips, short diastolic and systolic murmurs with thrills, and a blood pressure of 106/74. Roentgenograms at that time revealed the existence of enlarged pulmonary arteries, and angiocardiography revealed an interauricular septal defect. Later this same year (1944) the patient suddenly experienced severe headache and poorly described visual loss, which were found due to a right temporal lobe abscess. This abscess was treated by Dr. C. C. Nash of Dallas, Texas, who excised it totally. The walls of the abscess are said to have contained "typical ray fungus," and its cause was considered to be actinomycotic. After a short convalescence the patient traveled to San Francisco with her husband, who was then stationed there as a member of the Navy.

Shortly after her arrival in San Francisco headaches returned and she was reoperated on by Dr. F. Keith Bradford, who found additional purulent material of staphylococcic origin. From this second operation she made a satisfactory recovery except for the occurrence of grand mal convulsions at widely spaced intervals, intermittent headaches, and a visual defect described by her husband as being absence of vision in the right upper quadrant of both eyes. Since the abscess had been on the right side, this point was inquired into several times, but the story of visual deficit in the right field could not be shaken.

During the month of September, 1950, the patient began to speak confusedly at times. Initially this was so slight that her husband attributed it to absent-mindedness. As time went on she began to complain of headaches, evidenced definite confusion, and had difficulty in naming objects. Her local physician performed a spinal puncture and discovered in the fluid 457 white cells per cubic millimeter, 85% of them lymphocytes. No organisms were seen on the smear of this fluid, and none grew on culture. A blood culture was similarly negative.

Physical Examination.—The patient appeared to be chronically ill, was slightly cyanotic and thin, and almost constantly kept one hand on her head while making frequent complaints of headache. She was unable to give her name when asked for it, was unable to name objects presented to her, and to most questions responded simply "yes," or "that's what the trouble is." It was not possible to tell whether she was oriented as to time or place, though it appeared that she was not. Over the entire precordium there was heard a loud mid-diastolic murmur, perhaps loudest in the fourth interspace near the apex; there was, in addition, a moderate systolic murmur at the base, both murmurs being accompanied by thrills. The pulmonary second sound was greatly increased. Her blood pressure was 96/64, her temperature 99 F and her pulse rate 98, with regular rhythm.

External examination of the head revealed the presence of a left posterior parietal burr hole and a right temporal craniectomy defect. Neither bulged, and the craniectomy was definitely pulsatile to palpation. The neck was not stiff, and no bruit was heard over the head. The visual field examination was poorly cooperated in, but there appeared to be a right homonymous defect since she seemed not to notice a light presented from the right side, whereas she occasionally looked at it when it was brought in from the left. The ocular fundi were without abnormality. The eyes moved conjugately, and there was no nystagmus. The pupils measured 4 mm. and reacted well to light. The corneal reflexes were equal, and pinprick was appreciated as painful over the two sides of the face. The masticatory muscles were normal. The right lower half of the face was moderately weakened, particularly on associated movement, best brought out when the patient was asked to demonstrate firm grips. Hearing appeared to be equal in the two ears. The tongue was sym-

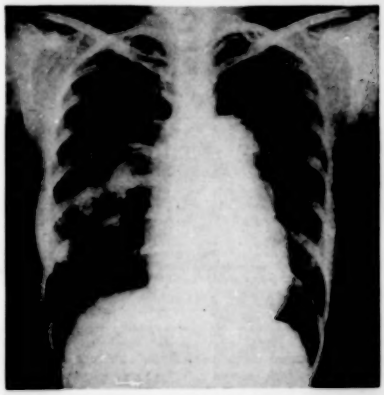

Fig. 1.—Roentgenogram of the chest of a patient with Lutembacher's syndrome and "paradoxical" brain abscess showing cardiac enlargement, particularly of the right side, and bilateral hilar opacities due to striking dilatation of the pulmonary arteries.

metric both at rest and in motion. Pinpricks seemed equally appreciated on all four extremities. The results of other sensory tests were unreliable. The patient was able to grasp strongly with the two hands but only when vigorously encouraged and with her attention drawn specifically to the right. When she was merely asked for grips while holding the two hands, she seemingly forgot to squeeze with the right. Similarly, when she was asked to wiggle her toes, she would wiggle only the left unless the right foot was slapped and her attention was drawn to the fact that she was not producing motion on this side, whereupon she would demonstrate a vigorous wiggle. The tendon reflexes were active and equal. No pathological reflex was present, and there was no clonus. No defect in coordination was present.

Laboratory Examination.—The hemoglobin amounted to 19 gm. per 100 cc. The red blood cell count was 5,960,000 and the white blood cell count 7,500; the blood Wassermann reaction was negative as was blood culture (with numerous subsequent negative cultures). Through a lumbar puncture made at the fifth interspace, clear but slightly xanthochromic spinal fluid was obtained under an initial pressure of 24 cm. of water. Removal of 10 cc. of fluid reduced the pressure to 14 cm. This fluid contained 25 white blood cells, all lymphocytes, 55 mg. of sugar, 82 mg. of total protein, and 750 mg. of chlorides. No organisms

were seen on smear, nor did any grow on culture. Electrocardiography revealed a marked right axis deviation with notching and prolongation of the QRS complex. X-ray examination of the chest (fig. 1) revealed cardiac enlargement, particularly of the right side of the heart, with increase in the hilar shadows due to enlargement of the pulmonary arteries.

Fig. 2.—Anteroposterior ventriculogram with the patient supine, showing displacement of the lateral and third ventricles to the right with dextroinclination of the third ventricle due to a left temporal lobe abscess. Note, also, the old left posterior parietal burr hole and the right temporal craniectomy defect.

Hospital Course.—The diagnoses made were (1) Lutembacher's syndrome and (2) cerebral abscess, probably in the left temporal lobe. During the next several days the patient remained unable to name objects or even supply her own name on demand, but spontaneous speech was generally understandable and she denied having significant headaches. The right temporal craniectomy defect remained soft.

On Oct. 18 the left posterior parietal burr hole was penetrated with a no. 18 spinal needle, and a ventricle yielding only a few drops of clear fluid was tapped. Several injections of 5 cc. each of oxygen were made into the needle, but with each disconnection of syringe from needle the oxygen appeared to make an immediate exit. Ventriculograms (fig. 2) revealed adequate filling and displayed, in addition to the right temporal craniectomy and the left posterior parietal burr hole, small lateral ventricles shifted to the right side with a shifted and inclined third ventricle. The ventriculographic observations were considered diagnostic of a left temporal lobe mass, presumably an abscess.

The patient was taken to the operating room, and, after anesthetization with ether, it was noted that the left pupil was widely dilated and fixed to light. A left temporal burr hole was made and the abscess verified by cannulation, after which a craniectomy of moderate dimensions was made, the abscess capsule visualized, and the most superficial portion of it excised. After visualization of the interior of the abscess capsule, which contained 20 cu. mm. of pus, drains were placed within it and the patient was returned to her room with the left pupil no longer abnormal.

During the next two weeks the patient remained clinically unchanged, with a still soft right temporal craniectomy defect. The laboratory had reported the pus removed from this abscess to contain hemolytic streptococci, Staphlycoccus aureus, and Hemophilus influenzae. Daily penicillin irrigations of the abscess cavity through implanted catheters was carried out, in addition to administration of penicillin parenterally, during this period when the drains were being progressively shortened. On Nov. 2, increased difficulty with speech was noted and a lumbar puncture revealed an initial pressure of 11 cm. The fluid was clear and colorless and contained but 6 lymphocytes. On Nov. 4 the temperature rose to 102 F. By the next day it had fallen to normal, but the patient had begun to vomit in association with increased weakness of the right lower portion of the face and some rigidity of the neck. Two days later the neck was definitely stiff, the aphasia was worse, intermittent vomiting continued, and for the first time the right craniectomy defect seemed tense. Lumbar puncture now revealed an initial pressure of 27 cm. The fluid had a ground glass appearance and contained 1,197 cells, 90% of them polymorphonuclear cells.

On Nov. 7, the patient was returned to the operating room and a new burr hole was placed posterior to the craniectomy, because of our fear that a more posteriorly situated abscess locule, not drained at the initial session, was present. Cannulation through this new burr hole failed to yield any abnormal resistance. This new wound was then closed, after which all the drains and catheters were removed from the abscess cavity. As soon as this was done a considerable amount of clear fluid, thought to be trapped irrigating fluid, flowed forth. Inspection of the cavity showed it to have a clean wall, consisting of two locules communicating through a large aperture. On the deep wall of one of these locules was a small papillary prominence, from which issued clear fluid, evidently from the temporal horn of the left lateral ventricle. A minimum amount of Penrose drain was placed into each locule, together with a small length of catheter to permit continued penicillin instillation. When the patient was returned to her room, it was apparent that she was speaking a good deal better than she had been prior to this second operation. During the next several days her speech progressively improved, the stiffness of the neck disappeared, and the right craniectomy remained soft.

On Nov. 19 confrontation examination of the visual fields revealed an almost total right homonymous hemianopsia but with some preservation of vision in the right lower quadrant. There also appeared to be a definite left lower quadrantic defect. The patient was able to read aloud only the simplest of words. She was unable to name any object presented to her, but, when asked if she understood what she read, she invariably vigorously nodded her head affirmatively and said "yes." There was no confusion in laterality; she could demonstrate the use of common objects but was unable to make change. The abscess cavity was still unclosed but had an adequate opening into it. The patient was dismissed from the hospital on Nov. 19, to be cared for on

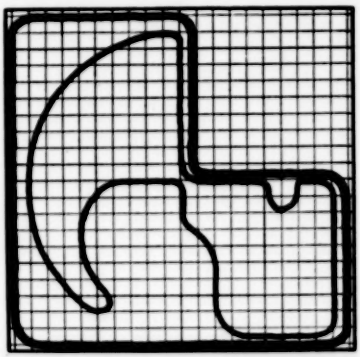

Fig. 3.—One meter tangent screen visual field of the right eye, showing the isopters for white 3-mm. (inner tracing) and 35-mm. (outer tracing) objects. The field of the left eye was almost identical, owing to a high degree of congruity of the right upper quadrantanopsia and the left lower quadrant defect of lesser density.

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an outpatient basis. By Dec. 22 the wound was completely healed and epithelialized.

Course to Date.—The patient was last examined on May 4, 1951, at which time she related that though she had occasional mild headaches, these were not severe and were unaccompanied by nausea or vomiting. She had had no convulsions, and her single neurological complaint was of poor vision with inability to read small print. Speech function was considerably improved, and she related that for the first time she was beginning to remember prayers. She said that during her hospital stay it had been a matter of great anxiety to her that she was unable to pray and that, though she had tried to make all of us understand her desire to have prayers said, none of us ever understood. Though she was able to do all the routine things in connection with keeping house, certain speech and language difficulties were still present. She had moved to a new town and had great difficulty in remembering the name of it. She was able to name most objects presented to her but rather frequently resorted to descriptions of function. Examination of the visual fields (fig. 3) showed a total right upper quadrantanopsia with a somewhat less dense left lower quadrantanopsia, both defects extending to the macula. The results of the remainder of the neurological examination were negative. Lumbar puncture disclosed an initial pressure of 13 cm. The fluid was clear and colorless and contained 4 lymphocytes and 19 mg. of total protein.

COMMENT

Concerning the cause of paradoxical cerebral abscesses, there is general acceptance by all recent contributors of the conjecture that at some phase in the cardiac cycle there must be contamination of blood in the left side of the heart by blood from the right side of the heart which has not passed through the pulmonary filter, and that this results in transient bacterial embolization to systemic blood fields, of which the cerebral circulatory bed seems most vulnerable to lodgement of viable organisms. Though in none of the cases collected by Sancetta and Zimmerman [2d] were there paradoxical abscesses in other tissues, the sternal abscess in our patient when she was in her twenties may have had such a causation.

Because, in the compensated heart, the pressure in the left atrium exceeds that in the right, some [2b] have considered that right ventricular failure must supervene before development of cerebral abscess is possible. A contrary view [2d] is that, even in the presence of the normal pressure gradient, a certain amount of commingling of the blood occurs to provide the *sine qua non* for abscess genesis. The patient we describe, though not cyanotic until age 4 and at first only during a pneumonic illness, was cyanotic most of her adult life, and there can be no doubt of generous mixture of blood from the right with that from the left side of the heart.

The observation of three different organisms in the most recent abscess in our patient is of some interest but it is not a singular occurrence. A wide variety of organisms, including H. influenzae, hemolytic streptococci, and gram-negative and gram-positive rods, staphylococci, Escherichia coli, Actinomyces bovis, Pseudomonas aeruginosa, and others have been found in combinations.[2d] Though a certain proportion of patients with these abscesses have had recent dental prophylaxis, sore throat, or traumas antecedent to the abscess development, about one-half have not, and no history indicating such an etiological relationship was obtained in our patient.

It is of interest that not until 1932 was the first correct antemortem diagnosis made [6] and that not until 1946 was the first survival reported.[7] Among the patients described to date, including the subject of this report, 15 have had correct antemortem diagnosis, 12 have been operated on, and 6 have survived. Hand [8] described a patient of Grant's who survived a first abscess but died six weeks later of a second, but the description and the photograph suggest that these two abscesses were closely related, with the first being in the right occipital lobe and the second adjacent to it in the right temporal lobe. No description could be found of a patient having two distinct abscesses occurring at such an interval of time and at such a distance in the brain that genesis in a single embolization could be excluded.

SUMMARY

Though cerebral abscesses occurring in the presence of cardiac septum patencies can hardly be considered truly "paradoxical," in view of a reasonable explanation of their pathogenesis, the term is useful in designation of this abscess category. These abscesses are more frequently encountered than is generally believed, in spite of a reported total of only 60 or so cases.

Report is made of a patient with Lutembacher's syndrome who had a right temporal lobe abscess in 1944, from which she recovered, and a left temporal lobe abscess in 1950 and who is still living. She represents the sixth reported survival and the first reported occurrence of two distinct abscesses with survival.

1006 Hermann Professional Bldg. (25) (Dr. Ehni).

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7. Smolik, E. A.; Blattner, R. J., and Heys, F. M.: Brain Abscess Associated with Congenital Heart Disease: Report of a Case with Complete Recovery, J. A. M. A. 130: 145-147 (Jan. 19) 1946.
8. Hand, A.: Cerebral Abscess: Complication of Congenital Cardiac Disease (Fallot's Tetralogy): Report of 2 Cases with Diagnosis and Operation, J. Pediat. 31: 662-668, 1947.

ACQUIRED ARTERIOVENOUS FISTULA WITH SUBACUTE BACTERIAL ENDOCARDITIS AND ENDARTERITIS

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and
Ignatius J. Tikellis, M.D., Wilmington, Del.

Acquired arteriovenous fistulas resulting from stab and gunshot wounds, with coexistent subacute septicemia due to Streptococcus viridans are not common. Hamman and Rienhoff [1] and Touroff and co-workers [2] described the first two patients cured of the septicemia following excision of the infected arteriovenous fistula. Four similar cases with cures following surgery have since been reported.[3]

Bretschneider,[4] Walz,[5] Gravier,[6] Leaman,[7] Porter and Williams,[8] and Cutler and Wolf,[9] reported cases in which the infection did not remain localized to the fistula and in which there was associated subacute bacterial endocarditis. The futility of excising the fistula in such cases has been recognized; however, the use of antibiotics and chemotherapeutic agents offers a possible cure that previously did not exist. Unfortunately, in the report that follows, the patient died, despite penicillin therapy and

From the Medical Service of The Delaware Hospital.

surgical excision of the fistula. To our knowledge, this is the first case of an acquired arteriovenous fistula with coexistent endarteritis and endocarditis that has been reviewed since the advent of antibiotics.

REPORT OF A CASE

A 45-year-old Negro woman was admitted to the Delaware Hospital on Nov. 17, 1950, in a comatose state. A presumptive diagnosis of hypoglycemia was made. The blood sugar was 15 mg. per 100 cc. The patient promptly responded to the intravenous administration of 70 cc. of 50% glucose.

After regaining consciousness, the patient gave the following history. Approximately six months before admission she noted the gradual onset of weakness, loss of appetite, shortness of breath on exertion, swelling of the ankles, and loss of weight. During the week before admission her symptoms became worse, and she ate little while consuming large amounts of alcohol. She had been an alcoholic for the previous 10 years. There was no history of orthopnea, hemoptysis, chest pain, or fever. She had no recollection of the 12 to 15 hours preceding admission.

In 1933 she received a deep stab wound of the left thigh, which was repaired at another hospital. The wound when inflicted bled profusely. After it healed, she noted a "buzzing sensation" in the left thigh, which was synchronous with the heart beat. There was no history of rheumatic fever or venereal disease. Review of the systems was noncontributory.

Physical examination after recovery from the hypoglycemia revealed a poorly developed, malnourished, Negro woman, in mild respiratory distress. The skin was cool and clammy. The temperature was 97.4 F (rectal), the pulse rate was 94, respirations were 28 per minute, and the blood pressure was 100 mm. Hg systolic and 52 mm. Hg diastolic. The mucous membranes and nail beds were pale. Examination of the head and neck showed nothing essentially abnormal except for marked engorgement of the neck veins. There was no cervical or axillary adenopathy. The lung fields were resonant throughout, but fine rales were present at both bases. The apical impulse was forceful, with a systolic thrill felt at the sixth left interspace in the anterior axillary line. A grade 4 systolic and a rumbling diastolic murmur was heard at the sternal border in the third left interspace, and the murmurs were transmitted to all stations and into the neck. There was also a fine blowing systolic murmur at the apex, transmitted to the axilla. The second pulmonic sound was louder than the second aortic and the second mitral louder than the first mitral.

The abdomen was soft and symmetric, and there were no scars. The liver was smooth and slightly tender and was palpable five fingerbreadths below the costal margin in the midclavicular line. No other organs or masses were palpable.

The extremities were symmetric. There were no splinter hemorrhages or petechiae. The pulses were of the collapsing type. The left leg was warmer than the right, and the superficial veins were prominent on the left. Medial to the apex of the left femoral triangle, there was a scar measuring 2 cm. in length. This was the site of a visible bounding pulsation, associated with a palpable systolic thrill and a continuous bruit on auscultation. The findings were attributed to an acquired arteriovenous fistula. Bilateral pistol shot sounds were present over the femoral arteries, more marked on the left. There was pitting edema (1+) of both feet.

Initial laboratory reports revealed an erythrocyte count of 2,200,000 with hemoglobin of 5.6 gm. per 100 cc.; the leukocyte count was 10,000, with 53% segmented polymorphonuclear leukocytes, 11% unsegmented polymorphonuclear leukocytes, 32% lymphocytes, and 4% monocytes. The sedimentation rate was 31 mm. in one hour (Cutler method). The urine contained albumin, 1+, but the sediment was not remarkable. The blood urea nitrogen was 15 mg. per 100 cc.; prothrombin was 36% of normal; the icteric index was 16 units; and the Mazzini reaction of the blood was negative. The total serum protein was 6.9 gm., with 2.07 gm. of albumin and 4.92 gm. of globulin. Cephalin flocculation was 1+ in 24 hours and 2+ in 48 hours.

The electrocardiogram showed a sinus rhythm of 104 with normal conduction intervals. The QRS complex in leads 1, 2, and 3 were upright with an S wave in lead 1 and a Q wave in lead 3. The S-T segments were normal except for slight elevation in lead 3, followed by an inverted T wave in lead 3. All S-T segments were depressed in the chest leads and the T waves inverted throughout. This tracing was interpreted as showing evidence of cor pulmonale or pulmonary infarction. A roentgenogram of the chest revealed a markedly enlarged heart, with enlargement of the left auricle, and pulmonary congestion.

About 14 hours after admission, the temperature rose to 103.8 F (rectal). Because of a suspicion of pneumonia of the lower lobe of the right lung, the patient was given 150,000 units of aqueous penicillin every 12 hours, which was continued for 12 days. Supportive therapy included digitalization, low sodium diet, and 1,000 cc. of whole blood given in divided transfusions.

The measures failed to improve the congestive failure, and the patient continued to fare poorly. There was persistent anemia, leukocytosis with a shift to the left, and a low grade fever. Sputum, urine, and blood cultures remained negative. On the 16th hospital day, the patient experienced sudden left quadrant and left lower anterior chest pain, associated with dyspnea and a rise in temperature to 102.8 F (rectal). The pain continued for two days, and respiratory distress developed. On the 18th hospital day, the spleen was palpable; a blood culture taken on the 16th day was reported as positive for alpha hemolytic streptococci. The organism was sensitive to penicillin (less than 0.1 unit per milliliter), aureomycin, and chloramphenicol. Venous, bone marrow, and arterial cultures were obtained, and intramuscular administration of 300,000 units of aqueous penicillin every three hours was started (fig. 1). The venous and bone marrow cultures were later reported as positive for alpha hemolytic streptococci.

On the 19th hospital day, there occurred an episode of right-sided chest pain associated with a pleural friction rub. Because of recurrent emboli, which may have arisen from the arteriovenous fistula, an emergency fistulectomy was performed. Before excision of the fistula the blood pressure was 130/40, and immediately after excision, 140/56. Prior to operation, occlusion of the left femoral artery reduced the pulse rate from 106 to 94. Circulation times with the administration of ether and dehydrocholic acid were 8 and 14 seconds, respectively, before operation and remained unchanged after fistulectomy.

At operation, an arteriovenous fistula was located midway in Hunter's canal. The proximal femoral artery was markedly dilated, and there was a small occluded proximal vein. The aneurysmal sac was folded back upon the proximal vein at its site of occlusion. The distal vein was dilated, and its thickened wall had the same gross appearance as the distal artery. On the anterior wall of the aneurysm there was a thin transparent area, under which there could be seen an attached vegetation that moved with each cardiac systole.

V 1
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7. Leaman, W. G.: Prognosis in Heart Disease with Special Reference to Curable Types, New Internat. Clin. **2**: 130, 1939.

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The fistula was excised without difficulty. The excised specimen in the opened state measured 5 by 4 cm. in its widest diameter (fig. 2). The proximal vein measured 2 cm. in length and was completely occluded by fibrous tissue. Extending proximally from the fibrous occlusion was a well-formed, adherent (whitish red) thrombus. The distal artery and vein were dilated and patent. The aneurysm contained innumerable diverticuli, many of which contained small, white, friable vegetations. At the ostium of the distal artery there was a heavy concentration of vegetations. These vegetations on culture yielded alpha hemolytic streptococci.

The operation was well tolerated, and the patient became afebrile. However, because of the strong suspicion of associated endocarditis, we decided to continue the penicillin therapy for a total of 30 days. The temperature varied between 97.4 and 99.2 F during this period of therapy. Except for persistent tachycardia and anemia the clinical course was satisfactory until the 18th postoperative day, when the patient again experienced bilateral chest and upper abdominal pain. Blood cultures taken on the 8th and 14th postoperative days were negative. An electrocardiogram taken concurrently with the onset of pain showed a pattern suggestive of pulmonary infarction. Increasing signs of congestive failure with a gallop rhythm developed. She was given small doses of bishydroxycoumarin (dicumarol®), and the daily prothrombin was maintained at a level between 17 and 28% of normal. On the 29th postoperative day she experienced severe generalized abdominal pain, and a diffuse morbilliform purple rash developed over the anterior part of the chest and abdomen. After an episode of vomiting a large amount of coffee ground material, she suddenly died.

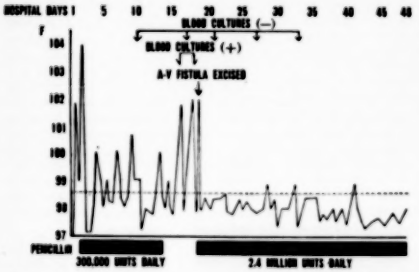

Fig. 1.—Temperature chart showing the time of positive and negative blood cultures in relation to excision of the arteriovenous fistula and penicillin administration.

Autopsy Findings.—Gross examination of the body revealed a thin Negro woman with a reddish purple rash extending over the anterior part of the chest and abdomen. There was moderate abdominal distention with ascites (1,000 cc. of clear yellow fluid). On the medial surface of the left thigh there was a recently healed scar measuring 11.5 cm.; medial to this was an old scar measuring 2.0 cm.

The pericardial sac contained 100 cc. of clear yellow fluid. The heart weighed 450 gm. The left ventricle was hypertrophied, and the left auricle was dilated. The aortic valve was sclerotic, and along the free edges of the cusps there were yellow-brown, friable vegetations. The mitral valve was slightly thickened (fig. 3). Microscopically, there was hypertrophy of the muscle fibers with a diffuse infiltration of inflammatory cells.

In the base of the lower lobe of the right lung there was a large infarct, which microscopically showed central necrosis and peripheral congestion with masses of inflammatory cells. There were multiple small infarctions in the left lung. Both lungs were congested.

The liver weighed 1,400 gm.; it was firm and yellow-brown. Microscopically, there was extensive fatty change, cloudy swelling and chronic central congestion. The spleen weighed 260 gm. It was congested, and there was an old area of infarction. Each kidney weighed 180 gm. The capsules stripped with ease, revealing a finely granular surface. There was peripyramidal hemorrhage. There was a fresh infarct in the left kidney.

Dissection of the gastrointestinal tract revealed a 5-cm. area of infarction in the midportion of the duodenum. Throughout the omentum there were numerous areas of purplish discoloration, which appeared to be infarcts. The operative site in the left thigh was opened and the femoral vessels exposed. The proximal stump of the femoral vein was filled with an adherent laminated clot.

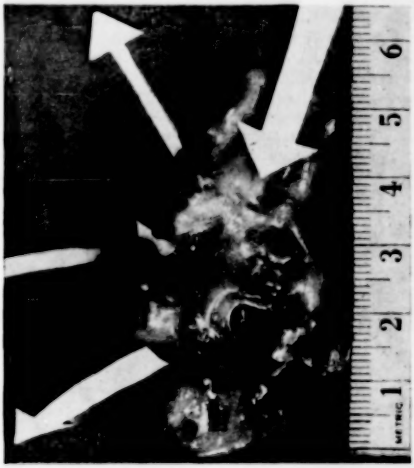

Fig. 2.—Incised arteriovenous fistula. The widest arrows directed downward are, from top to bottom, the proximal and distal femoral artery. The top arrow directed away from the specimen extends out from the occluded proximal vein, while the distal vein is seen to enter on the left side of the aneurysm. Note the vegetations at the entrance of the distal vein and protruding from the diverticulum at the base of the aneurysm. The vegetations on culture yielded a pure growth of Streptococcus viridans.

Fig. 3.—Vegetative growths can be seen on the aortic leaflets. The Streptococcus viridans could not be isolated from this source by culture.

COMMENT

The patient's hospitalization was initiated by an episode of hypoglycemic shock. This, in addition to the patient's casual attitude toward the discovered arteriovenous aneurysm, was misleading and delayed a correct

diagnosis. Attention was first directed toward study and treatment of the marked hepatic dysfunction, with the thought that the fistula could be excised on an elective basis when the patient was in better condition.

A spiking temperature curve, unexplained leukocytosis, persistent anemia, and the development of a palpable spleen associated with the occurrence of multiple emboli strongly suggested endarteritis and/or subacute bacterial endocarditis. Positive blood cultures yielding alpha hemolytic streptococci confirmed the suspicion of septicemia.

There was sudden deterioration of the patient's general condition concomitant with the shower of emboli. In an attempt to avert death, the arteriovenous fistula was excised and the patient was treated with penicillin (2,400,000 units daily). Immediately after excision of the infected fistula, the temperature returned to normal; subsequent blood cultures remained sterile; the patient gradually improved. However, on the 18th postoperative day pulmonary infarction recurred; the spleen again became palpable; the cardiac decompensation was refractory to all measures; and the patient suddenly died on her 29th postoperative day, while still receiving penicillin.

SUMMARY

A case of a femoral arteriovenous fistula resulting from a stab wound, with associated subacute endarteritis and endocarditis due to Streptococcus viridans is reported. Excision of the infected aneurysm and a full course of penicillin therapy failed to effect a cure. The autopsy findings are reviewed.

501 W. 14th St.

HEMORRHAGIC PAPILLARY NECROSIS OF THE KIDNEY

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Acute renal papillary necrosis is a relatively infrequently encountered condition. A perusal of the literature reveals the condition to be most commonly found in diabetic patients, with a few cases reported in older persons with some type of obstructive uropathy. The majority of patients in which this pathological condition was found were in the sixth or seventh decade. The youngest patient we encountered was an 18-year-old girl, in whom the lesion developed postpartum.[1] Careful search of the American literature failed to disclose an occurrence in infants. The purpose of this paper is to report a case of hemorrhagic papillary renal necrosis in a 2-month-old infant.

Most writers consider the condition to be a form of pyelonephritis. The striking predominance of its occurrence among diabetics was emphasized in a report by Robbins and co-workers.[2] Of 26 cases of necrotizing papillitis found at autopsy, 19 were in diabetics. The remainder were nondiabetic cases, but they presented urinary tract obstruction of some nature. In a review of the subject, Edmondson and co-workers [3] reported that 40% of their cases occurred in nondiabetic patients with urinary tract obstruction. Experimentally, Mallory [4] produced the lesion in rabbits by ligating one ureter and injecting bacteria intravenously. More recently, Muirhead and his group [5] produced the condition in dogs by ligating one or both ureters in the absence of pyelonephritis. They felt that the occurrence of pyelonephritis in cases of papillary necrosis in obstructive uropathies is due secondarily to the necrosis induced by the obstruction. Harrison and Bailey [6] demonstrated that infections of the urinary tract in diabetes are not only frequent but also usually asymptomatic. They concluded that, in many cases of diabetic patients with latent infections of the urinary tract, this focus may lead to serious lesions of the kidneys.

REPORT OF CASE

A white male infant was admitted to Montgomery Hospital on Jan. 7, 1952, at the age of 7 weeks, with the chief complaint of fever and diarrhea. He had been well until five days before admission, when a "cold," cough, and fever developed, with diarrhea. He was given penicillin, but his condition failed to improve. Past personal history revealed two previous episodes of diarrhea, beginning at the age of 12 days. This condition was improved on a milk-free formula, but he averaged six to seven partially formed stools per day. Weight gain had been below normal. The family history was noncontributory. Physical examination revealed a temperature of 103.2 F. The skin was pale, the lips and mucous membranes were dry, and the anterior fontanel was depressed. Breathing was rapid and shallow; the lung fields were clear. Both ear drums were slightly injected. His weight was 11 lb. 4 oz. (5,102 gm.).

The carbon dioxide combining power was 30 vol. %, so the patient was given sixth-molar sodium lactate solution by hypodermoclysis. His temperature rose to 104 F the following day, when therapy with crysticillin* (a procaine penicillin G preparation) was begun. The loose stools continued, along with a fever of 101 to 105 F. Terramycin therapy was begun on the third hospital day. In spite of fever, he continued to take his feedings of nutramigen* (a hypoallergenic [lactose-free] formula for infants) well and did not appear extremely ill. A nasal discharge developed three days after admission, and, in spite of adequate fluids, the carbon dioxide combining power dropped to 25 vol. %. Clyses were again given, along with aqueous penicillin, 25,000 units every three hours. The temperature continued to be elevated, diarrhea persisted, and he began to vomit some of his feedings.

On the fifth hospital day, the carbon dioxide combining power was 50 vol. %, with a blood urea of 73 mg. per 100 cc. Urinary output was judged to be normal. Two days later, he appeared very listless and showed some respiratory distress. Carbon dioxide combining power had now dropped to 18 vol. %, and blood urea had risen to 124 mg. Soon after removing blood for chemistry studies, marked air hunger developed and he died on the seventh hospital day.

On admission, urine was acid with a trace of protein, 7-9 white blood cells, occasional red blood cells, and a few bacteria with many epithelial cells. Four days later, there was 3+ protein with 1 to 3 white blood cells. Granular casts appeared two days later. Hemoglobin was 11.5 gm. (Haden-Hausser method), red blood cells 3,490,000, and white blood cells 12,000 with 67% polymorphonuclears and 32% lymphocytes. A blood culture was sterile. Stool culture revealed Bacillus pyocyaneus and Friedländer's bacilli. Chest roentgenogram on Jan. 10, 1952, showed a questionable mottled density behind the heart on the lateral view.

From the Department of Pathology and Pediatrics, Montgomery Hospital.

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Autopsy Findings.—The body was that of a fairly well-nourished infant of 2 months of age. There was moderate pallor of the skin. Minimal congestive signs were present in the lungs. The abdominal organs were normal in size and position. The entire gastrointestinal tract was opened from the esophagus to the rectum. No ulcerations were noted, and the lining mucosa was pale. There were several slightly enlarged mesenteric lymph nodes. The most striking findings were limited to the kidneys. They were normal in size and configuration. Both renal capsules stripped with ease and presented a pale brown surface with moderate fetal lobulations. Cut sections disclosed a well-demarcatrd corticomedullary pattern. Involving the papillae of nearly all the pyramids were irregular varisized foci of hemorrhagic necrosis (fig. 1). There was no gross evidence of pyelonephritis or pyelitis. The pelves and ureters as well as the bladder were normal. No sign of obstructive uropathy was present. Microscopically, the hemorrhagic foci in the kidneys presented a picture of ischemic necrosis (fig. 2). There were ghost-like remnants of the medullary tubules with little sign of inflammation. Hemorrhagic foci were prominent. The cortex and the medulla surrounding the necrotic foci were not remarkable.

COMMENT

This case represents several interesting problems, the answers to which may be only speculative in the final analysis. The past personal history revealed the occurrence of diarrhea and failure to gain weight. This was thought to be due to either infection or possibly milk allergy. Even though the stools improved and the patient gained weight on a milk-free diet, the stools did not become normal, thereby ruling out milk allergy. The picture at the time of admission again pointed to infection, manifested by diarrhea and fever. He was dehydrated and acidotic, and, in spite of temporary improvement, it was impossible to maintain a normal acid-base balance. The first evidence of impaired renal function was noted on the fifth day when the blood urea was found to be elevated. This continued to rise with a drop in the carbon dioxide combining power. It was at first postulated that a primary infection of the intestinal tract may

Fig. 1.—Renal papillae showing hemorrhagic involvement.

have led to secondary involvement of the kidneys. The normal appearance, however, of the intestinal mucosa at autopsy would tend to rule out primary intestinal tract infection. It is well known that genito-urinary infections or lesions are frequently manifested by gastrointestinal symptoms, especially vomiting and diarrhea, in an infant of this age. Thus it seems plausible to assume that the primary involvement was in the kidneys.

PATHOGENESIS

We believe that this represents an unusual case of hemorrhagic papillary necrosis in an infant, an example of which has not previously been reported. The condition was not associated with either diabetes or obstructive uropathy, which in itself is rather unusual. Although the

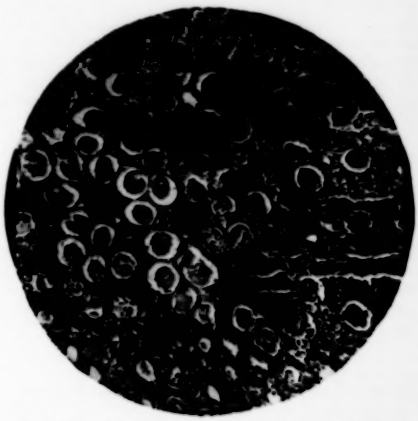

Fig. 2.—Photomicrograph showing hemorrhagic necrosis of kidney.

exact pathogenesis remains in the realm of conjecture, we feel that this represents an ischemic necrosis owing to a focal infarction of the papillae. The necrosis was of the coagulation type and associated with hemorrhages. In the animal experimental work of Muirhead and coworkers,[5] 60% of the renal changes showed papillary hemorrhage.

According to the pathological descriptions of reported cases, the papillary necrosis occurring in diabetic persons is primarily of the coagulation suppurative type and closely resembles that occurring in obstructive uropathy with pyelonephritis. The pathogenesis of the latter seems to be on the basis of pressure ischemia resulting from the increased pressure within the pelvis of the kidney. In diabetics without obstructive uropathy, it would seem that pyelonephritis is probably primary and the papillary necrosis is secondary owing to pressure caused by the intestinal inflammation. Other possible etiological factors suggested in recent articles [7] include the following: capillary thrombosis, acute degeneration of the walls of the medullary vessels owing to acute infection or toxic sub-

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5. Muirhead, E. E.; Vanatta, J., and Grollman, A.: Papillary Necrosis of the Kidney: Clinical and Experimental Correlation, J. A. M. A. **142**: 627 (March 4) 1950.

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stance, spasm of the medullary vessels or of the sphincter muscles in the papillae, "reverse Trueta shunt," and arteriosclerosis and arteriolosclerosis.

In our case, careful study of the renal vessels disclosed no evidence of thrombosis or other vascular involvement. The lack of inflammatory reaction, microscopically, would tend to preclude a primary infection of the kidneys. The absence of cortical hyperemia does not support the hypothesis of a reverse Trueta shunt. We feel that in this instance a possible explanation may rest upon a toxic involvement of the medullary vessels to cause vascular damage or spasm and resultant tissue anoxia and necrosis. The normal relative ischemia of the renal papillae would explain the localization of the lesion.

SUMMARY

A case of hemorrhagic renal papillary necrosis in an infant 8 weeks of age is reported. This was manifested chiefly by gastrointestinal symptoms, fever, failure to maintain normal acid-base balance, and terminal evidence of renal insufficiency. The patient had neither diabetes nor an obstructive urinary tract lesion. We believe that this represents an unusual condition of ischemic necrosis of the renal papillae owing to focal infarction that has not been heretofore described.

VISUAL AID IN TEACHING RADIATION THERAPY

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and
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Visual aids in teaching are recognized as important adjuncts to proper training of medical and dental students and physicians. In the field of radiation therapy, since radiation beams are invisible by ordinary methods and potentially harmful to observers where they can be shown, the use of a translucent anatomic model with a

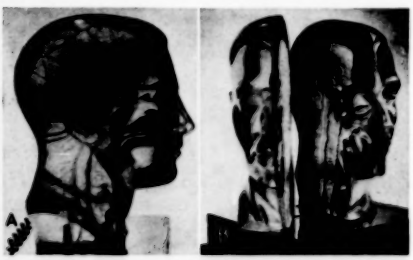

Fig. 1.—*A*, lateral view showing outlines of anatomy in sagittal plane. *B*, view of sagittal plane with light bulbs embedded in model.

light beam to simulate the central ray of the x-ray therapy beam is of value for teaching accuracy in directing the radiation beams. Students, residents, and physicians in all fields of medicine, particularly in radiation therapy, can appreciate the importance of proper placement and aiming of the beam of irradiation. Especially where small treatment fields are being used, slight variations in the proper angulation may only partially cover an area to be treated, resulting in inadequate dosage to the tumor being treated. This can be readily visualized with the beam directed into the translucent model.[1]

An anatomic model with the outlines of the principal anatomy of the head in the sagittal plane was constructed

Fig. 2.—*A*, light beam simulating x-ray therapy beam directed to pituitary from above. *B*, view of sagittal plane showing outline of principal anatomy.

of special resins for this purpose. Light bulbs illuminate five areas most commonly treated with radiation, namely, the pituitary, posterior nasopharynx, lateral aspect of the tongue, base of the tongue, and larynx. A separate drop cord and light produces a beam used as a pointer during instruction to simulate the actual beam of irradiation.

For demonstration, the narrow beam of light (simulating the central ray of the therapy beam) is aimed at the area to be treated. The light representing this area is turned on to demonstrate whether the light beam is being aimed correctly (fig. 1 and 2).

115 Church St. (Dr. Cohen).

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Assistant Visiting Radiation Therapist, Bellevue Hospital, New York, and Radiologist, All Souls Hospital, Morristown, N. J. (Dr. Cohen); Assistant Professor of Radiology, New York University College of Medicine (Dr. Rosh).

1. Model cast of C-8 resins by the Bakelite Co., Bloomfield, N. J. Exhibited at the 1951 annual meeting of the Radiological Society of North America and the 1952 annual meeting of the Medical Society of New York.

Anesthesia in Young Children.—The induction of general anesthesia in small children occasionally is difficult. Too frequently physical means are used to restrain such patients. It is easy to understand why forcing of the induction of anesthesia in very un-co-operative patients is both psychologically and physically undesirable. Any aids that can be devised to attract and hold a young patient's attention during this period of induction are well worthy of consideration. . . .

A relatively simple device which has been an aid in induction of general anesthesia is a whistle so constructed that it will fit into the exhalation side of a circle-absorption gas machine. . . . During inhalation, no sound is created. The more effort exerted in . . . expiration, the higher is the note emitted by the whistle.

An actual demonstration by the anesthesiologist of how this whistle works quickly interests the little patients. A brief trial of the procedure, with the use of oxygen alone, and frequently with the patient holding the anesthetic mask on his own face, will be sufficient to gain his confidence. During this time, anesthetic gases can be added to the system. When the patient has lost consciousness, the device can be removed from the machine, or the whistle can be covered by a plastic cap. . . .—Thomas H. Seldon, M.D., An Aid to the Induction of General Anesthesia in Young Children, *Proceedings of the Staff Meetings of the Mayo Clinic*, Sept. 10, 1952.

UROGRAPHIC CHANGES IN DIABETES INSIPIDUS

REPORT OF A CASE

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and
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The roles of the posterior pituitary gland and the supraopticohypophysial tract in diabetes insipidus [1] have been discussed in all their ramifications in the medical literature. There has, however, been a paucity of reports on the urinary tract changes that occur in this disorder. Osler [2] first described the secondary pathological changes

Fig. 1.—Excretory urogram (20 minute film) showing symmetrical dilatation of entire urinary tract in patient with diabetes insipidus.

as follows: "The kidneys have been found enlarged and congested. The bladder has been found hypertrophied. Dilitation of the ureters and pelves of the kidneys has been present." Recently, Weller and co-workers [3] demonstrated these changes urographically. Their case was complicated by secondary hypertension, which was relieved by ureteral meatotomy. The following case is one of idiopathic, hereditary diabetes insipidus uncomplicated by hypertension, in which there were classic urographic changes.

REPORT OF A CASE

A 25-year-old Japanese man was admitted to Tripler Army Hospital, Honolulu, on Aug. 3, 1951. His symptoms of polydipsia and polyuria with a urine of low specific gravity were first observed at the age of 3 years. His mother and his brother had the same disorder; however, attempts to carry out similar studies on them were unsuccessful for geographical reasons. Admission to the hospital, where the diagnosis of hereditary diabetes insipidus was made, was precipitated by pleuritic chest pain, fever, cough, and generalized malaise, which were found to be due to a tuberculous pleural effusion.

The patient recalled vividly, that as a child, in attempting to quench his insatiable thirst, he would drink from any fountain, stream, pond, pool, water tank, or mud hole when the conventional sources of pure water were not available. When he was of military age and was summoned for service, he was reprimanded for submitting "water" as his urine specimen, since its specific gravity was 1.000; nevertheless, he was inducted. While in the service, he usually kept three to four full canteens of water under his bunk at night. They were always empty by the following morning. Intervals between voiding were about one hour day and night. There was no incontinence. While serving with the armed forces in the Philippines during World War II, he had dysentery several times as the result of drinking grossly contaminated water from such sources as water buffalo mud holes. His discharge from military service and return to civilian life left him with this condition still unnoticed until the present hospitalization as a Veterans Administration beneficiary.

Physical examination disclosed findings compatible with right pleural effusion, but the results were otherwise within normal

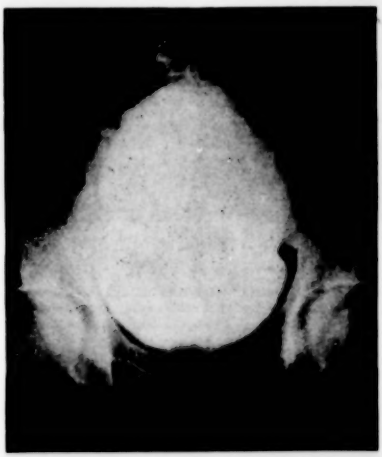

Fig. 2.—Cystogram, made with 1000 cc. of contrast medium, showing dome of bladder at level of iliac crest in patient with diabetes insipidus.

limits. The average 24 hour urinary output was 15 liters, with a range of 12 to 18 liters. There was no variation between the diurnal and nocturnal urinary volume. The urine specific gravity ranged between 1.000 and 1.005. The results of urinalyses were otherwise normal. All other laboratory examinations, including hematological studies, serologic test for syphilis, blood chemistry studies, basal metabolism test, and electrocardiographic examination, were within normal limits. Roentgenographic studies of the skull were normal. The volume of the urinary output was

From the Urological Section, Tripler Army Hospital.

1. Jones, G. M.: Diabetes Insipidus: Clinical Observations in 42 Cases, Arch. Int. Med. **74**: 81-93 (Aug.) 1944. Heller, H., and Urban, F. F.: The Fate of Antidiuretic Principle of Post-Pituitary Extract in Vivo and Vitro, J. Physiol. **85**: 502-518 (Dec.) 1935. Warkany, J., and Mitchell, A. G.: Diabetes Insipidus in Children: Critical Review of Etiology, Diagnosis and Treatment, with Report of 4 Cases, Am. J. Dis. Child. **57**: 603, 1-1666 (March) 1939.

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3. Weller, C. G.; Elliott, W., and Gusman, A. R.: Hereditary Diabetes Insipidus: Unusual Urinary Tract Changes, J. Urol. **64**: 716-721 (Nov.) 1950.

unaffected by intensive trial therapy with posterior pituitary extract.

Excretory urograms disclosed prompt appearance of contrast media bilaterally, with symmetrical dilatation of the entire urinary tract. While there was only moderate dilatation of the renal collecting systems, both ureters were greatly widened and tortuous (fig. 1). Cystographic examination with 1,000 cc. of a contrast medium revealed the dome of the bladder to be at the level of the iliac crest and the margin to be very irregular (fig. 2). Cystometrography showed an atonic bladder, with sensations of heat and cold, and filling present but diminished. There was a gradual increase in intracystic pressure to 44 mm. Hg at a capacity of 1,450 cc., with no uninhibited or voluntary detrussor contractions.

Endoscopic examination showed the urethra to be normal, and no obstructing tissue was seen at the vesical neck. There was moderate, generalized, coarse trabeculation of the dilated bladder. Both ureteral orifices appeared normal. Ureteral catheters, no. 7 French, were easily passed up each ureter for a distance of 27 cm., and clear urine dripped from each catheter at a continuing rate of 130 drops per minute. Since some urine passed alongside the catheters in the dilated ureters, 260 drops per minute did not represent total renal output. Phenolsulfonphthalein appeared from each ureteral catheter in 4 minutes, with a 10% excretion in 10 minutes from each kidney. A retrograde urogram made after 50 cc. of contrast medium were allowed to flow into each ureteral catheter by gravity is shown in figure 3.

Fig. 3.—Retrograde urogram of patient with diabetes insipidus.

COMMENT

The endoscopic and urographic changes secondary to diabetes insipidus can be explained on the basis of a functional incompetence of the outflow capacity of the urinary tract in relation to the abnormally high production rate of urine. The resultant effect is that of a relative obstruction of the vesical orifice and ureterovesical junctures, which, although of normal caliber, are functionally inadequate to handle the abnormally increased production of urine. The back pressure thus developed results in urinary tract changes that are usually associated with lower and middle urinary tract obstruction. The atonicity of the bladder is the result of overdistension.

SUMMARY

A case of hereditary diabetes insipidus is reported. The associated urinary tract changes secondary to relative obstruction of the vesical orifice and ureterovesical junctures are demonstrated roentgenographically.

ADDITIONAL SAFEGUARD FOR USE IN BRONCHOSCOPY OF TUBERCULOUS PATIENT

Raymond A. Wetrich, M.D., Batavia, N. Y.

For some time, a face shield has been used in many hospitals for protection of the physician during bronchoscopy. It has been impractical to use this face guard during the actual application of topical anesthetics to the pharynx and tracheobronchial tree, because a headlight or headmirror could not be readily worn at the same time. This difficulty has been obviated by riveting an ordinary headmirror to the headpiece of the face shield (see figure). The apparatus shown above has been used in this hospital for several months. It has proved satisfactory as a safeguard for the physician during anesthetization of patients, particularly those with tuberculosis.

Face shield with mirror riveted to head piece.

Chief of Surgical Service, Veterans Administration Hospital.

Mortality in Rabies.—Webster (1942) reports that only 50% of all rabid dogs actually secrete virus in the saliva whilst Rhodes (1946) states that not more than 5 to 15% of people bitten by definitely rabid dogs are liable to develop rabies and die. Anti-rabies treatment appears to save only one out of every two persons who would otherwise have developed hydrophobia, and Cornwall (1923) records that out of 812 bitten persons who had received anti-rabies treatment there was a mortality rate of 2.9% whereas the death rate in 1,362 untreated persons was 6.2%. —J. Carmichael, Animal-Man Relationship in Tropical Diseases in Africa, *Transactions of Royal Society of Tropical Medicine and Hygiene*, July, 1952.

SUSTAINED BACTEREMIA WITH PLEUROPNEUMONIA-LIKE ORGANISMS IN A POSTPARTUM PATIENT

D. Ward Slingerland, M.D.
and
Herbert R. Morgan, M.D., Rochester, N. Y.

Since the first isolation of pleuropneumonia-like organisms (PPLO) from man in 1937 by Dienes and Edsall,[1] these organisms have been cultured from the genitourinary tract, joints, sputum, and spinal fluid of patients.[2] Only one possible instance of the isolation of pleuropneumonia-like organisms from the blood has appeared in the report of the cultivation of an unusual organism from the blood of a patient with subacute bacterial endocarditis.[3] However, this organism was described as resembling either the Grahamella organism (Tyzzer) or a pleuropneumonia-like organism, and, on the basis of its described characteristics, it would not seem to be a pleuropneumonia-like organism.[4]

The clinical course and laboratory findings in a patient with a febrile illness accompanied by sustained bacteremia, during which pleuropneumonia-like organisms were repeatedly isolated from the blood stream, are reported here.

REPORT OF A CASE

A 16-year-old Negro girl was admitted to the obstetric service of Strong Memorial Hospital for delivery of her second child. She had delivered a normal female child 11 months earlier and had had postpartum convulsions. In prepartum examinations during her second pregnancy, the presence of a pulmonic systolic murmur (grade 2 to 3), a questionable diastolic component heard intermittently, and a prominent pulmonary conus led to the consideration of a diagnosis of patent ductus arteriosus. She had no symptoms suggestive of cardiac disease.

Twenty-four hours after medical induction of labor with successful delivery of a male infant, chills and temperature of 38.5 C (101.3 F) developed; in 42 hours the patient's temperature reached 40.7 C (105.3 F). Numerous blood cultures were made, and before the organism was fully identified she was given 8,000,000 units of penicillin and 2 gm. of streptomycin a day and transferred to the medical service. Results of another physical examination were negative save for definite systolic and diastolic murmurs and a palpable thrill in the pulmonic area. There were no signs suggestive of subacute bacterial endocarditis.

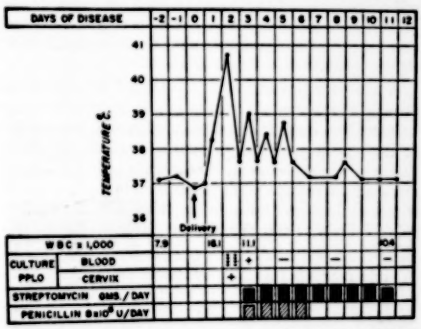
After treatment with penicillin and streptomycin was started, there were no further positive cultures, but the patient's temperature rose to at least 38.5 C (101.3 F) every day until three days later, when she became afebrile. Penicillin therapy was discontinued on the 6th day and streptomycin therapy on the 11th day. The white blood cell count three days before the onset of fever was 7,900, rising to 16,100 on the first day of fever and falling to 11,100 with 75% polymorphonuclear cells on the third febrile day.

The agent, finally identified from nine blood cultures taken on the second and third days of fever, was a pleuropneumonia-like organism. This organism grew sparsely in broth aerobically and, on subculture, grew aerobically only in horse serum broth or anaerobically on rabbit blood agar. Minute, pinpoint colonies appeared on the blood agar. In heavy films, prepared from the original broth culture and stained with difficulty with the use of the Gram technique, coccoid bodies were seen, and impression smears from the colonies on blood agar showed the pleomorphism characteristic of this group, including both round and filamentous forms. Great difficulty was experienced in maintaining cultures of the organism, and it died out after several transfers in the laboratory. The organism was found to be sensitive to chloramphenicol and terramycin and resistant to penicillin, streptomycin, and bacitracin in tests carried out on blood agar plates, with the use of disks impregnated with the respective antibiotics (manufactured by Difco Laboratories, Inc.). A similar pleuropneumonia-like organism was isolated from the cervical secretions of the patient obtained on the first day of fever.

The patient left the hospital against advice. On several follow-up examinations in the outpatient clinic, the patient was asymptomatic, with normal leukocyte counts. Blood cultures taken during these examinations were negative.

COMMENT

The organism isolated in this case, from both blood and cervical secretions, possessed the morphological and cultural characteristics of a pleuropneumonia-like organism and was cultured with difficulty. On transfer the agent grew only on blood agar in an anaerobic jar or aerobically in horse serum broth. Three subcultures were sent to Dr. Harry A. Feldman of the Department of



Summary of findings in a case of pleuropneumonia bacteremia. (PPLO= pleuropneumonia-like organisms.)

Medicine, State University Medical Center, Syracuse, N. Y., who confirmed the identity of pleuropneumonia-like organisms on morphological grounds. It is important to point out that these cultures were taken before penicillin was given and therefore these organisms are not the "dissociated bacteria" [5] reported as developing in cultures after exposure to penicillin.

Mrs. Alice D. Labey assisted in the bacteriological studies.

From the Departments of Medicine and of Bacteriology, University of Rochester School of Medicine and Dentistry.

1. Dienes, L., and Edsall, G.: Observations on L-Organism of Klieneberger, Proc. Soc. Exper. Biol. & Med. **36**: 740, 1937.

2. (*a*) Dienes, L., and others: Medical Progress: The Role of Pleuropneumonia-like Organisms in Genitourinary and Joint Diseases, New England J. Med. **238**: 509, 1948. (*b*) Paine, T. F., Jr.; Murray, R.; Perlmutter, I., and Finland, M.: Brain Abscess and Meningitis Associated with Pleuropneumonia-like Organism: Clinical and Bacteriological Observations in Case with Recovery, Ann. Int. Med. **32**: 554, 1950.

3. Herschberger, C.; Dantes, D. A., and Shwartzman, G.: A Case of Subacute Bacterial Endocarditis Caused by an Unusual Microorganism Related to "Pleuropneumonia-like" or Grahamella Group, J. Mt. Sinai Hosp. **12**: 295, 1945.

4. Dienes and others.[2a] Bacterial and Mycotic Infections of Man, edited by R. J. Dubos, Philadelphia, J. B. Lippincott Company, 1948, chap. 30.

5. Dienes and others.[2a] Dienes, L.: Isolation of Pleuropneumonia-like Organisms from Pathological Specimens with Aid of Penicillin, Proc. Soc. Exper. Biol. & Med. **44**: 165, 1947.

A total of nine positive blood cultures was obtained over a 24-hour period, indicating a sustained bacteremia rather than a transient invasion of the blood stream. Since a similar organism was isolated from the patient's cervical secretions, it was believed that, after the delivery of her child, she had had a blood stream invasion by pleuropneumonia-like organisms in her genital tract corresponding to the bacteremia following delivery previously reported as occurring with other organisms found in the genital tract.[6]

The patient was given combined treatment with penicillin and streptomycin before the organism was identified. When the pleuropneumonia-like organism was discovered, penicillin therapy was discontinued; in view of recent work indicating the susceptibility of pleuropneumonia-like organisms to streptomycin,[7] streptomycin therapy was continued. It is to be noted that as soon as antibiotic therapy was started the patient's blood stream became sterile, her temperature fell, and the white blood cell count returned to normal levels. This improvement occurred in spite of the fact that results of tests indicated that the organism was not sensitive to either penicillin or streptomycin.

A number of investigators [8] have noted the occurrence of pleuropneumonia-like organisms in the genitourinary tract of man, particularly in association with nonspecific or abacterial cervicitis or urethritis. However, the observation of pleuropneumonia-like organisms has also been reported on routine cultures in asymptomatic patients without evidence of inflammatory lesions. These equivocal findings have cast some doubts on the etiological significance of these organisms.

In the case reported here the appearance of the pleuropneumonia-like organisms in the blood at the onset of an acute febrile illness, their persistence in the blood stream for over 24 hours, and disappearance with recovery strongly suggests that these organisms were the cause of the illness described.

SUMMARY

A febrile illness, which developed in a 16-year-old Negro girl 24 hours post partum, was accompanied by sustained bacteremia due to a pleuropneumonia-like organism. A similar organism was isolated from the cervical secretions of the patient. These findings present additional evidence for the causative role of pleuropneumonia-like organisms in diseases of man.

260 Crittenden Blvd.

6. Douglas, R. G., and Rhees, H. S.: Bacteriologic Findings in Uterus During Labor and Early Puerperium, Am. J. Obst. & Gynec. **27**: 203, 1934.

7. Leberman, P. R.; Smith, P. F., and Morton, H. E.: Susceptibility of Pleuropneumonia-like Organisms to In Vitro Action of Antibiotics: Aureomycin, Chloramphenicol, Dihydrostreptomycin, Streptomycin, and Sodium Penicillin G, J. Urol. **64**: 167, 1950.

8. Dienes and others.[5a] Harkness, A. H., and Henderson-Begg, A.: The Significance of Pleuropneumonia-like or "L" Organisms in Non-gonococcal Urethritis, Reiter's Disease, and Abacterial Pyuria, Brit. J. Ven. Dis. **24**: 50, 1948. Randall, J. H.; Stein, R. J., and Ayres, J. C.: Pleuropneumonia-like Organisms of the Female Genital Tract: Study of 300 Gynecological Cases, Am. J. Obst. & Gynec. **59**: 404, 1950. Morton, H. E.; Smith, P. F., and Leberman, P. R.: Cultivation of Pleuropneumonia-like Organisms from the Human Genitourinary Tract with Reference to Their Possible Venereal Transmission, Am. J. Syph. **35**: 14, 1951.

COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R. T. STORMONT, M.D., *Secretary.*

Cortisone Acetate (See New and Nonofficial Remedies 1952, p. 322).

Schering Corporation, Bloomfield, N. J.

Tablets Cortogen Acetate: 25 mg.

The Upjohn Company, Kalamazoo, Mich.

Suspension Cortisone Acetate with Benzyl Alcohol 1.5%: 20 cc. vials. An isotonic saline suspension containing 25 mg. of cortisone acetate in each cubic centimeter.

Tablets Cortisone Acetate: 25 mg.

Mephenesin (See New and Nonofficial Remedies 1952, p. 432).

E. R. Squibb & Sons, New York

Capsules Tolserol: 0.25 gm.

Elixir Tolserol: 473 cc. and 3.8 liter bottles. A solution containing 0.1 gm. of mephenesin in each cubic centimeter.

Solution Tolserol: 50 cc. and 100 cc. ampuls. A solution containing 20 mg. of mephenesin in each cubic centimeter.

Tablets Tolserol: 0.25 and 0.5 gm.

Phenylephrine Hydrochloride-U.S.P. (See New and Nonofficial Remedies 1952, p. 190).

Winthrop-Stearns, Inc., New York.

Emulsion Neo-Synephrine Hydrochloride 0.25% (Intranasal): 30 cc. and 473 cc. bottles. A mineral oil and water emulsion containing 2.5 mg. of phenylephrine hydrochloride and 4 mg. of sodium benzoate in each cubic centimeter. Preserved with 0.5% chlorobutanol.

Chlorprophenpyridamine Maleate (See New and Nonofficial Remedies 1952, p. 8).

Schering Corporation, Bloomfield, N. J.

Solution Chlor-Trimeton Maleate: 1 cc. ampuls and 10 cc. vials. A solution containing 2 mg. of chlorprophenpyridamine maleate in each cubic centimeter. Preserved with thimerosal 1:10,000.

Piperocaine Hydrochloride-U.S.P. (See New and Nonofficial Remedies 1952, p. 37).

Eli Lilly & Company, Indianapolis.

Solution Metycaine Hydrochloride 3% and Dextrose 5%: 1.5 cc. ampuls. A solution containing 30 mg. of piperocaine hydrochloride and 50 mg. of dextrose in each cubic centimeter.

Nicotinic Acid-U.S.P. (See New and Nonofficial Remedies 1952, p. 460).

The Bowman Bros. Drug Company, Canton, Ohio.

Tablets Nicotinic Acid: 50 mg.

Ascorbic Acid-U.S.P. (See New and Nonofficial Remedies 1952, p. 445).

The Bowman Bros. Drug Company, Canton, Ohio.

Tablets Ascorbic Acid: 50 mg. and 100 mg.

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COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

APPARATUS ACCEPTED

The following additional products have been accepted as conforming to the rules of the Council on Physical Medicine and Rehabilitation of the American Medical Association for inclusion in Apparatus Accepted. A copy of the rules on which the Council bases its action will be sent on application.

RALPH E. DE FOREST, M.D., *Secretary.*

Ille Hydromassage Subaqua Therapy Units

Ille Electric Corporation, 50 Mill Rd., Freeport, L. I., N. Y.

Ille Hydromassage Subaqua Therapy Unit, Model HM-300

The Ille Hydromassage Subaqua Therapy Units are devices designed to permit immersion of a patient's extremities in warmed, agitated water. Of the six models referred to in this statement, the one now called HM-200 was previously accepted by the Council under the name of the Ille Portable Underwater Therapy Tank with Hydromassage. The remaining five are designated as follows:

Model HM-300, for arm or leg, mobile.

Model HM-400, for arm (Titus), mobile.

Model HM-500, for arm, stationary.

Model HM-600, for arm, leg, or hip (like HM-200, but stationary instead of mobile).

Model HM-601, for arm, leg, or hip, stationary.

The dimensions of these models are as follows:

Model	Centimeters *			Inches *			Kilograms		Pounds	
	Deep	Long	Wide	Deep	Long	Wide	Packed	Unpacked	Packed	Unpacked
HM-300	56	71	38	22	28	15	102	64	225	140
HM-400	41	71	38	16	28	15	102	68	225	150
HM-500	46	71	38	18	28	15	100	55	220	120
HM-600	71	91	51	28	36	20	136	59	300	130
HM-601	71	104	51	28	41	20	136	59	300	130

* The dimensions in centimeters and inches represent the inside space available for immersion.

These models, including the accepted HM-200, have the same type of electric turbine ejector and aerator driven by a ⅓ horsepower motor. The source of power required is 60-cycle alternating current at 115 volts. For HM-300 and HM-400, the power consumption is 1,500 watts; for HM-500, HM-600, and HM-601, 650 watts. The essential differences are those of size.

Evidence from sources acceptable to the Council indicated that the device was well made and performed satisfactorily.

Audiotone Hearing Aid, Model 11

Audio Company of America, 5305 N. Sixth St., Phoenix, Ariz.

The Audiotone Hearing Aid, Model 11, is a conventional electric hearing aid. Without the clothing clip it measures 76 by 57 by 20 mm., and without batteries it weighs 75 gm. The batteries add 76 gm. and the receiver with cord adds 10 gm. of weight. The wheel-type off-on switch also serves as the gain control, and there is a two-position, toggle-type tone control. Additional control of frequency characteristics can be obtained by changing receivers.

Evidence from sources acceptable to the Council indicated that the device was well made and performed in a satisfactory manner.

Chronowave Electrostimulator, Model 320

R. J. Lindquist Co., 2419 W. Ninth St., Los Angeles 6.

The Chronowave Electrostimulator, Model 320, is a generator of electric currents for muscle stimulation, ion transfer, and electrodiagnosis. The apparatus is housed in a console that can be moved about on casters. It operates on 60-cycle alternating current at 110 to 120 volts and draws 100 watts.

Chronowave Electrostimulator, Model 320

It measures 96 (height) by 52 by 45 cm. (37 by 20½ by 17½ in.) and weighs 36 kg. (80 lb.). Packed for shipment it measures 96 by 58 by 53 cm. (37 by 25½ by 21½ in.) and weighs 50 kg. (110 lb.). The foreign shipping weight is 50 kg. These shipping weights include the line cord, connecting cords, 4 treatment electrodes with moist pad inserts, and the stimulating electrode (with handle) for muscle motor-points.

Evidence of sound construction and satisfactory operation was obtained from sources acceptable to the Council.

Melco Oxygen Tents, Models 262 and 360

Melchior, Armstrong, Dessau Co. of Delaware, Inc., 730 Grand Ave., Ridgefield, N. J.

Melco Oxygen Tent

The Melco Oxygen Tents, Models 262 and 360, are devices for administering oxygen for long periods to patients in bed. Each has a canopy of transparent plastic material with supports and a cabinet housing the mechanism for cooling and circulating oxygen. The two models are identical except that Model 262 is equipped with a ¼ horsepower motor compressor and Model 360 with a ⅓ horsepower motor compressor.

The cabinet, mounted on casters, stands 122 cm. high (48 in.); the other measurements are 61 and 58 cm. (24 and 23 in.). The entire crated assembly measures 132 by 66 by 66 cm. (52 by 26 by 26 in.) and weighs 104 kg. (230 lb.). The shipping weight includes canopy, regulators, and Fibreglas filters. The apparatus requires alternating current at 60 cycles and 115 volts and oxygen in tanks. Model 262 draws 665 watts and Model 360 draws 710 watts.

Clinical trials under conditions acceptable to the Council gave convincing evidence of satisfactory construction and operation.

Goldentone Hearing Aid, Model 69

Johnston Hearing Aid Mfg. Co., 708 W. 40th St., Minneapolis 8. Distributed by the Goldentone Corporation, 708 W. 40th St., Minneapolis 8.

The Goldentone Hearing Aid, Model 69, is a conventional electric hearing aid measuring 86 by 58 by 22 mm. without clothing clips and weighing 80 gm., without batteries, receiver cord, and receiver.

Evidence of satisfactory construction and performance was obtained from sources acceptable to the Council.

Goldentone Hearing Aid, Model 69

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UNJUSTIFIED CRITICISM OF PHYSICIANS AND DENTISTS

The lay press recently published statements attributed to Rear Adm. Lamont Pugh, Surgeon General of the U. S. Navy, who was reported to have made them at the annual meeting of the Association of Military Surgeons. According to a statement in a Chicago newspaper, Admiral Pugh is said to have "denounced what he called prima donna doctors who avoid military service." Their main objection to military service, Admiral Pugh is reported to have said, "is a matter of easier, quicker, and bigger money—avarice." He also allegedly asked: "Since when has the doctor of medicine and dentistry become such a pantywaist as to require that a bald responsibility others accept with good grace must be decked out with certain frills before he will buy it?" After claiming there has been a tiresome "hue and cry" that military service must be made more attractive for physicians and dentists, he commented: "During my sojourn at the combatant front in Korea this past summer I failed to detect evidence of any special effort being made on the part of anyone to make the service more attractive to the soldiers and marines who were fighting, bleeding and dying in the heat and dust on a barren Korean hillside." (See also Washington News, advertising page 13, this issue.)

Immediately on learning of Admiral Pugh's accusations, a statement was issued from the headquarters office of the American Medical Association, which reads in part:

"The American Medical Association branded as 'erroneous' today Rear Admiral Pugh's statement before the Association of Military Surgeons that the 'greed for easier, quicker and bigger money' is keeping many civilian physicians and dentists from entering military service.

"The fact of the matter is that most physicians, like most civilians, prefer a non-military life. This is especially true in peacetime. When patriotism is at stake, the doctor, like everyone else, is always ready to serve his country. During World War II more than 60,000 physicians served in the armed forces—and not a single one was drafted. They all served voluntarily.

"Physicians' income figures during 1951, as reported by the Office of Business Economics of the Department of Commerce, certainly do not support Admiral Pugh's theory that 'big money' in civilian life is keeping doctors and dentists from becoming career men in the armed forces."

According to a press report, Dr. Harold Hillenbrand, secretary and general manager of the American Dental Association, said dentists in the United States have met the full call of their country in Korea and in World War I and World War II. He also said, it is reported, "However, dentists have not been willing after the profligate waste of health personnel man power which characterized military health services during World War II, to meet every whim dreamed up by a military administrator to increase the size of his work force, often at needless expense of civilians."

At about the same time, Dr. Louis H. Bauer, President of the American Medical Association, was asked for a statement by a New York newspaper. He replied that Admiral Pugh's statement was an unjustified slur on the medical profession. He granted that there may be some physicians who are too deeply imbued with the commercial aspects of medicine, but their actions should not serve as a basis for castigating the entire profession. They represent at best only a small group. He further pointed out that the military services themselves were guilty of waste in the last war when more doctors than were actually needed were inducted into service and kept in camp or in the field not doing medical work. He said that this situation has largely been eliminated since the Medical Services Corps has taken over the nonmedical functions that doctors performed in the last war, and he called attention specifically to the studies, deliberations, and recommendations of the A. M. A. Council on National Emergency Medical Service. He concluded, however, that some persons, "and apparently Rear Admiral Pugh is one of these, think that doctors continue to do these services which they are not trained to do." It is not known how many officers of medical societies were asked to comment throughout the United States, but at this time it is known that at least the president of the New York County Medical Society and the president of the First District Dental Society in New York were asked to comment on Admiral Pugh's statement, and at least part of their replies appeared in the press.

The present "doctor-draft law" expires in June, 1953. The A. M. A.'s Council on National Emergency Medical Service, like other bodies including the armed forces, is now studying the problem. What the future may be for doctors and dentists will depend on many factors, but no matter what it may be the need for cooperation will be an important factor influencing the outcome. It seems, however, an odd way to gain cooperation from a profession by accusing it publicly and unjustifiably, especially with broad sweeping statements that obviously have more emotional than factual background.

CHOLANGIOLITIC BILIARY CIRRHOSIS

The subject of hepatitis has received much attention during the past decade. The epidemics of jaundice during World War II and the introduction of the method of aspiration liver biopsy have contributed to the clarification of some problems associated with acute and chronic jaundice. "Catarrhal jaundice," the result of inflammation of the papilla of Vater with consequent ascending infection, as postulated by Virchow, was shown to be an extremely rare type of jaundice. Eppinger demonstrated in his necropsies during World War I that the essential cause of jaundice is a definite liver disease, hepatitis. This concept was later confirmed by Klemperer [1] and many other investigators. Eppinger described two clinical and histological types of hepatitis: (1) the hepatocellular form and (2) the periacinar or cholangitic form. The latter is characterized by a more prolonged and severer jaundice and enlarged liver and spleen.

Watson and Hoffbauer [2] reported 10 cases of chronic jaundice in which the clinical manifestations were wholly or mainly those of regurgitation jaundice, with little or no disturbance of liver cell function. The histological changes observed in their biopsies and necropsies consisted of periportal lymphocytic infiltration, bilirubin staining of the liver cells, and bile thrombi in variable number. The histological pattern of the liver parenchyma was remarkably well preserved, the pathological changes being confined mainly to cholangioles (the finer biliary radicles and the primary bile canaliculi). These authors suggest the term cholangiolitic hepatitis for cases in which the manifestations, at least at some stages of the disease, are wholly or mainly those of regurgitation jaundice with little or no disturbance of liver cell function.

One theory advanced by them in an attempt to explain the regurgitation jaundice in the absence of any extrahepatic obstruction is that of leakage or diapedesis of bile because of increased permeability of the cholangioles damaged by the hypothetical causative agent. This might be thought of as analogous to the leakage of the glomerular filtrate back through the damaged tubules of the kidney in mercury bichloride poisoning, with resultant oliguria and azotemia. The bile thrombi observed in their histological studies probably represented a secondary phenomenon, in view of the fact that in some instances, even in the presence of extensive regurgitation jaundice, they were not sufficiently numerous to be considered as the primary factor.

Another possibility considered is that of an earlier, preexisting damage to the liver cells. The pronounced increases of urine urobilinogen in the early stages of epidemic or sporadic hepatitis are definite evidence of hepatocellular damage. Cholangiolitic hepatitis is distinguished from other forms of hepatitis by regurgitation jaundice without ascites and by pruritus, hypercholesterolemia, and hyperphosphatasemia. The end stages are those of atrophic or portal cirrhosis. The disease entity is probably the same as liver cirrhosis described by Hanot.

Ricketts and Wissler [3] point out in a recent communication that the pathogenesis of cholangiolitic biliary cirrhosis is still controversial. The process is considered by some as a descending cholangitis, a hematogenous infection that involves the smaller bile canaliculi.

MacMahon and Thannhauser [4] described xanthomatous biliary cirrhosis as characterized by skin xanthomas of the plain and tuberous variety, enlarged liver and spleen, jaundice of years' duration, extremely high values for total cholesterol and for lecithin, and a serum that is transparent and not milky because of its normal or rather low content of neutral fat. Contrary to previous reports, MacMahon and Thannhauser stress, on the basis of early biopsy and autopsy studies, that xanthoma formation of the lining of bile ducts is not the cause of this type of biliary cirrhosis. MacMahon found in the early biopsies a nonspecific chronic inflammatory reaction centered around the smallest bile ducts and junction ducts in the portal areas. He found no evidence of xanthomatosis in any of the ducts. The pathological picture was the same as that seen in cholangiolitic xanthomatosis.

Ricketts and Wissler [3] observed two female patients with xanthomatous biliary cirrhosis. The cases were characterized by chronic jaundice, hepatomegaly and splenomegaly, xanthomatosis, and pruritus. They also report on seven cases with nonxanthomatous biliary cirrhosis, the essential features of which were exactly the same as those described by Watson and Hoffbauer.[2] They expressed the opinion that the pathological process is primarily an inflammation in and around the smaller bile canaliculi. They found no evidence that it is a parenchymatous liver disease or a condition secondary to parenchymatous liver disease.

TELECASTS FROM DENVER MEETING

Physicians unable to attend the A. M. A.'s Annual Clinical Session in Denver Dec. 2 to 5 can bring the highlights of the meeting into their own homes via television. Clinical demonstrations, special scientific exhibits, and other session features will be shown on two half-hour nationwide telecasts originating from the A. M. A. Clinical Session in Denver. The telecasts will be sponsored by Smith, Kline and French, Philadelphia pharmaceutical firm, which for the first time brought TV audiences coverage of the A. M. A.'s Annual Session in Chicago last June.

The telecasts, again titled "The March of Medicine," are scheduled for Tuesday evening, Dec. 2, and Thursday evening, Dec. 4, over the NBC-TV network. Every physician should encourage his patients and friends to tune in on "The March of Medicine" and become acquainted with the progress being made in improving the health of the American people.

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1. Klemperer, P.; Killian, J. A., and Heyd, C. G.: The Pathology of "Icterus Catarrhalis," Arch. Path. 2:631-652 (Nov.) 1926.
2. Watson, C. J., and Hoffbauer, F. W.: The Problem of Prolonged Hepatitis with Particular Reference to the Cholangiolitic Type and to the Development of Cholangiolitic Cirrhosis of the Liver, Ann. Int. Med. 25:195-227 (Aug.) 1946.
3. Ricketts, W. E., and Wissler, R. W.: Cholangiolitic Biliary Cirrhosis (Primary Biliary Cirrhosis), Ann. Int. Med. 36:1241-1277 (May) 1952.
4. MacMahon, H. E., and Thannhauser, S. J.: Xanthomatous Biliary Cirrhosis (A Clinical Syndrome), Ann. Int. Med. 30:121-179 (Jan.) 1949.

THE PRESIDENT'S PAGE

A MONTHLY MESSAGE

This page is being written on plane trips from Hong Kong to New York via Japan and Honolulu. When I reach home November 6, I shall have been completely around the world. Although I have enjoyed it, it has not been a pleasure trip, for I believe I have worked harder than had I been at home. Lest someone accuse me of not practicing what I have preached in THE JOURNAL pages, may I say that I voted from Athens by absentee ballot. I hope no member of the Association failed to cast his ballot.

In London I attended a meeting of the organizing and program committees of the First World Conference on Medical Education, which is to be held in London, Aug. 22-29, 1953, and is being sponsored by The World Medical Association. Plans are coming along rapidly now, and the conference promises to be an outstanding event in medical history. There will be both plenary and sectional meetings. Proceedings will be conducted in the three official languages of the Association—English, French, and Spanish—by simultaneous translation. The program will be confined to the problems of undergraduate medical education. There will be four main topics: (1) requirements for entrance to medical school, including the selection of students and determination of their fitness to remain in medical school; (2) the aims and content of the medical curriculum; (3) teaching methods and techniques; and (4) the aims and place in the curriculum of preventive and social (not socialized) medicine. Dr. Victor Johnson of the Council on Medical Education and Hospitals will preside over the first section. Dr. Austin Smith, Editor of THE JOURNAL, and I are members of the program committee.

From London I proceeded to Athens with a stop of a few hours in Rome. In Athens the meetings of the Council and the Sixth General Assembly of The World Medical Association were held. Representatives from 25 countries and many international organizations were present. The number of countries was not quite so large as at previous assemblies, but Greece is a little more difficult to reach and transportation more expensive than for the other countries in which we have met.

Many topics were considered. The medical aspects of social security came in for a lot of discussion. The report on this subject that had been drafted by the council and that was printed in THE JOURNAL on May 31, 1952, page 489, was unanimously approved. Practically every country present entered into the discussion on this subject, giving their views and telling their difficulties. For example, the British delegates commented on their National Health Service, and I must say that, in talking to delegates from other countries, I did not find anyone who wanted the system in his own country. From my personal knowledge of it, whether or not it is acceptable to Great Britain, it certainly would be unacceptable in the United States, and we want none of it in this country.

Considerable discussion also took place on the medical education conference. Various reports on this and other subjects were adopted. An abstract of the minutes of the Assembly will be published in an early issue of THE JOURNAL, and a more complete report will be in an early issue of the Bulletin of The World Medical Association.

The best-known contributor to the scientific program was Sir Alexander Fleming, the discoverer of penicillin. The only American appearing in this program was Adm. W. H. P. Blandy, director of the Health Information Foundation, who stressed the importance of obtaining adequate information on health needs and services before embarking on any health program.

Visits were made to Delphi, where the Delphic Oracle held forth and to Epidaurus of Aesculapian fame. Charlatanism was practiced in those days too. A bronze statue of Artemis formerly stood there, and water dripped from her lips. This water, considered of miraculous origin, was supposed to have great healing powers. It has now been found that water was piped from the hills into the base of the statue and up to the mouth. So the miraculous water was due to an engineering feat.

The Greek physicians are doing excellent work but are handicapped by lack of adequate facilities. Their social insurance plan results in the physician's seeing nearly a patient a minute in some cases. They are paid ridiculously low sums for their services. For a consultation for which on a private basis they might receive the equivalent of $10, they receive the equivalent of 50 cents in an insurance case. Great devastation took place in Greece during the communist revolution following the war; however, the Greeks are very industrious and have made tremendous strides in rehabilitating their facilities, for which they deserve much credit.

My stop in Istanbul was for a few hours only, between planes, and I had no opportunity to see any medical institutions. In Lebanon, Iraq, and Pakistan I did not have time to leave the airports. In India, however, I spent 10 days at the invitation of the Indian Medical Association. I was able to visit New Delhi, Bombay, Madras, and Calcutta. I was kept busy from early morning to late in the evening visiting hospitals, medical schools, and health ministries and attending teas, receptions, luncheons, and dinners. Indian hospitality was unbounded.

The Indian Medical Association was founded in 1933, but twice after that it was banned by the British authorities. Following Indian independence in 1947, the association began to take on added importance. The majority of Indian physicians are not organizationally minded, and membership in the association is growing slowly. Many of the leaders in the profession, however, realize the importance of a strong national association that will represent the vast majority of the profession.

The Indian government is toying with the idea of a full-time salaried service for the profession, and has actually put it into effect in two areas. The medical association does not approve of this and is trying to get the government to consider another system. The situation in India is different from that in any other country

I have visited. There is a population of 356 million, and about 90% of the population are practically in the indigent class. This presents a difficult problem. It is evident that physicians cannot settle in the rural areas, as they could not make a living.

In the hospitals in India, a high type of medicine is practiced. There are not enough hospitals, and those they have are greatly overcrowded. One hospital I visited was supposed to accommodate 750 patients; it had over 1,200. Mats were on the floors between the beds. However, notwithstanding the overcrowding, the patients get good care.

Another point of difference between the medical association and the government is the status of the indigenous system of medicine that has existed in India for many years. Since it is an inferior and unscientific brand of medicine, naturally the medical association opposes its extension, but the government is considering increasing the number of its practitioners because they can be trained in far less time than a physician can be trained.

In all four of the cities I visited, I explained the organization and functioning of the American Medical Association and discussed the medical aspects of social security as approved by the World Medical Association. Many questions were asked, and both topics aroused considerable interest. The Indian Medical Association would like to pattern itself along the lines of the A. M. A.

From India, I proceeded to Bangkok, Thailand (known better to most Americans as Siam). There I visited all the hospitals, the two medical schools, and the Pasteur Institute. At the latter I saw two boys enter the snake pit and extract the venom from two hooded cobras. I decided that of all the jobs I did not want, this one tops the list! Their hospitals are excellent and their schools also. There is a marked American influence in medicine in Thailand. There are some American physicians attached to the hospitals. Many of their own physicians have been trained in the United States, and American medicine seemed to be the pattern. There was some overcrowding of the hospitals, but it was not so marked as in India. The general economic level of Thailand seems to be far higher than in India. Again, I found a desire on the part of the Thai physicians to pattern their association after the A. M. A. The vast majority of the doctors belong to their association. In this country, too, I was deluged with hospitality.

In both India and Thailand there was an expressed desire to effect more interchange of students for graduate training. India is having particular difficulties in this regard. India, of course, has developed its medical education along British lines, and until recently American degrees were not recognized there. One of the health ministers expressed a desire for development of more reciprocity between the two countries. The Thai doctors are in the government health service, but they do private practice as well. In fact, they say they could not exist on their government salaries.

Leaving Bangkok, I proceeded to Hong Kong, where I remained overnight and then departed for Tokyo. Here, too, friendliness and hospitality were the order of the day. I am sure my friends would have been highly entertained to see me trying to sit cross-legged on the floor at a Japanese dinner and endeavoring to eat with chopsticks. I think the Japanese were amused, too, but they were most polite about it and flattered me on my dexterity (?) with the chopsticks!

I had a long talk with the officials of the Japan Medical Association. For years Japanese medicine was under German influence. Now, however, the leaders in medicine are turning to the United States; they definitely want to pattern themselves along American lines. They admire the American Medical Association and stated they hoped some day to have the Japan Medical Association like it.

They, too, have governmental problems. There is a national health service that covers rural districts, and this service is practically bankrupt. They also have a special health service for factory workers. Both systems are government controlled. There is freedom of choice of physician, but in some places the patient is restricted to the use of the district dispensary services.

Under the present system, the doctor receives about 20 cents for an examination, and the fee for an appendectomy is $7.50. No fees are paid for reexaminations nor are any fees paid for special examinations. A lump sum is paid and prorated among the doctors. Often lay clerks arbitrarily cut down the doctors' claims for service. If an electrocardiogram is thought necessary, the government will pay the cost of it only once in two months on the same patient and only three leads are permitted.

Before the war the civilian medical profession was under the thumb of the military. Now they say they are under the bureaucrats and the bureaucrats do not want to see the doctors make any money. Under the social security system there is no real personal relationship between physician and patient and the medical profession is constantly slandered. The medical association is trying to have the health service completely revised. Both examinations and treatment are restricted by law. It is hoped that the new system will stress standards of medical care. While participation in the system is not compulsory, present economic conditions have forced most physicians into the system. Under the new system, fees will be increased and a patient will be allowed to pay for additional services if he desires them, which I understand now is illegal.

At the present time, if a doctor buys new equipment he is taxed on it. The government considers this new equipment will increase his income; therefore, he is further taxed in a decreasing scale each year for the supposed life of the equipment.

The Japanese doctors need our assistance. They have had little literature since before the war, and they are thirsty for knowledge. Before the war, their scientific meetings were not well attended. Now they have difficulty in accommodating all those who wish to attend. They would like to send students here, but the great difficulty is language. Few of the doctors speak English. Many of them can read it, however.

Three things stand out in my mind as a result of my trip. First, American medicine is held in high esteem and the doctors abroad want American help. Second, there is great admiration for the American Medical Association and a general desire among the national medical associations to pattern themselves after it. Third, it seems that throughout the world governments ignore the medical profession whenever possible, and wherever there is government-controlled medicine, it is of an inferior type. If possible, I feel even more strongly than I did not only that our fight against the socialization of medicine in the United States was justified but that, had we not made that fight, we might well now be on the downward road in medical care in this country. Finally, I was again impressed by the fact that doctors speak a universal language; they think alike and have the same problems, differing only in degree. While they want to make a reasonable living, their first consideration is their patients.

LOUIS H. BAUER, M.D., Hempstead, N. Y.

MEDICAL NEWS

CALIFORNIA

Society News.—The Central California Psychiatric Society has been organized, with Dr. Mark Zeifert, Fresno, president; Dr. Rudolph B. Toller, Stockton, vice-president; and Dr. Vayle S. Briden, Fresno, secretary-treasurer. Membership will be limited to members of the American Psychiatric Association.——The California Society of Allergy has elected the following officers for the year: Dr. M. Coleman Harris, Vallejo, president; Dr. Grace M. Talbott, San Francisco, president-elect; Dr. Norman M. Shure, Los Angeles, secretary-treasurer.

Cerebral Palsy.—A program to aid the very young brain-injured child has been established at Children's Hospital, San Francisco, under the sponsorship of the United Cerebral Palsy Association of San Francisco. The program affords such ancillary services for the referring physician as physical, occupational, and speech therapy; a prenursery school program; social service; child guidance; parent education; and a volunteer consultation board representing the medical specialties. Admissions will be on Fridays from 9:30 to 11 a.m. and only on referral by a physician or clinic, to whom reports of progress will be sent. The private physician also will be invited to present his case for review before the consultation board, if he desires.

Dedicate Heart and Cancer Research Center. — A $1,072,000 medical research building was recently dedicated by the University of Southern California School of Medicine, Los Angeles, across from the Los Angeles County Hospital. Dr. Leonard A. Scheele, surgeon general, U. S. Public Health Service, unlocked the doors to the five story heart and cancer research structure with Dr. Burrell O. Raulston, dean of the medical school. Among other things on the second floor are a tissue culture laboratory, four biochemical laboratories, a conference room, and a lecture hall. Eight laboratories are on the third floor with several offices, a suite of cold rooms, a volatile solvents laboratory, and storage area. Animal quarters, surgeries, and physiological laboratories are on the fifth floor.

COLORADO

Compulsory Course in Medical Electronics. — The National Jewish Hospital at Denver has initiated a 20 week course combining electronics and medicine, which is compulsory for all members of the medical staff. Conducted by an electronics engineer doing experimental work at the hospital, the course ranges from the basic fundamentals of electricity through the complex structure of devices used in the institution's cardiopulmonary laboratory. Finals for the course will require each physician to convert an ordinary hearing aid and stethoscope into an amplified stethoscope.

Malpractice Insurance Policy to be Cancelled.—The Colorado State Medical Society has received notice from the United States Fidelity and Guaranty Company that the master policy under which many physicians obtain their malpractice insurance is to be cancelled Nov. 1, 1953, and that only individual policies will be written as current coverage expires. The society states that one year hence, all members who now hold USF&G "certificates" of its master policy will have to be insured under individual policies, unless some other company can be found that will write group coverage. USF&G will, in the future, write malpractice coverage only on an individual basis and on a "standard form" policy approved for Colorado by the insurance commissioner and contemplated for adoption by several other companies. Pending further developments, members are urged to check with their insurance agent for details and to make certain that they have malpractice coverage when their present certificates expire.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

CONNECTICUT

Society and Hospital News.—On Dec. 3 the New Haven Medical Society will have as guest speaker Dr. Charles K. Friedberg, New York, and on Dec. 17, Dr. Paul Reznikoff, New York.——The Hartford Hospital will present the following guest speakers at its Saturday meetings, which are held at 11 a. m. in the hospital amphitheater:

Dec. 6, Averill A. Liebow, New Haven, Clinical Pathological Conference.
Dec. 13, Lester Adelson, Cleveland, Role of the Pathologist in Homicide Investigation.
Dec. 20, J. William Littler, New York, Problems of Reconstructive Surgery of the Hand.

DELAWARE

General Practitioners Meeting. — The Delaware Academy of General Practice will hold its first annual scientific session Dec. 6 at the Delaware Academy of Medicine, Lovering Ave. at Union St., Wilmington. The program will include:

O. Spurgeon English, Philadelphia, Relation of Good Parental Care to Prevention of Psychosomatic Illness.
Louis A. Krause, Baltimore, Medicine and the Bible.
Julius Pomeranze, New York, Diagnosis and Treatment of Atherosclerosis.
Philip Thorek, Chicago, The Acute Abdomen.

At 5:15 p. m. a film, "Tele-Clinic of the 1952 Scientific Session of the A. A. G. P.," will be shown through the courtesy of Wyeth, Incorporated. The annual banquet will be at 7 p. m. at Kent Manor Inn. Dr. R. B. Robins, Camden, Ark., president of the A. A. G. P., will be guest speaker.

FLORIDA

Society News. — The Miami Chamber of Commerce has presented a certificate of outstanding service for participation in the "Hope Unlimited" radio series to the Dade County Medical Association, Inc., which helped to create equal employment opportunities for the physically handicapped in the greater Miami area.

Meeting on Obstetrics and Gynecology.—The Florida Obstetric and Gynecologic Society will hold its annual midwinter scientific meeting at the Soreno Hotel in St. Petersburg, Dec. 6-7. The guest speaker will be Dr. John M. Nokes, associate professor of obstetrics and gynecology, University of Virginia School of Medicine, Charlottesville.

Personal.—Dr. Carlos A. P. Lamar, Miami, recently addressed a public meeting on "Psychosomatic Medicine" at the Miami Municipal Library, which was sponsored by the Alianza Interamericana and the Mental Health Society of South Florida.——Dr. Frances E. M. Read, Jacksonville, has resigned as director of the Bureau of Maternal and Child Health of the Florida State Board of Health.——Dr. Richard C. Cumming was named Ocala's "outstanding citizen for 1951" by the Junior Chamber of Commerce.——Dr. Phillip W. Horn of Jacksonville was elected president of the Florida Trudeau Society at the society's convention in Daytona Beach. Dr. Hawley W. Seiler of Tampa was elected vice-president.——Drs. Morris B. Seltzer, Daytona Beach, Irving L. Alberts, Miami Beach, and Erasmus B. Hardee, Vero Beach, have been appointed members of the Florida State Board of Medical Examiners; Dr. Frank D. Gray, Orlando, has been reappointed to the board for a third term.——Dr. J. Ernest Ayre of Miami, formerly of McGill University, Montreal, Canada, has become an American citizen by act of Congress after passage of a bill waiving the preliminary five year residence. It is reported that only 13 persons in the history of the United States have previously been granted citizenship by act of Congress. Dr. Ayre became director of the Dade County Cancer Institute in 1951.——Dr. Courtlandt D. Berry, Orlando, has re-

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turned after spending a year in Puerto Rico, where he helped plan a program for the early discovery of cancer in women. The program is being sponsored by the medical school of the University of Puerto Rico and the Insular Health Department in Rio Piedras. Dr. Berry also held clinics and acted as consultant in Puerto Rican hospitals.

ILLINOIS

Record Number of Births.—According to Oswald K. Sagen, Ph.D., chief of the bureau of statistics of the state health department, a record number of babies were born to Illinois residents during 1951. The provisional total of 200,581 live births exceeded the previous high established in 1947 by 5,253, although the birth rate of 24.2 per thousand population set in 1947 was not equaled. Since 1946 the live birth rate has been greater than 22 per thousand each year except in 1950, when it dropped slightly to 21.7. The 1951 rate of 22.6 is second only to the 1947 record rate.

Personal.—Dr. William R. Parkes, formerly associate professor of surgery at Northwestern University Medical School, has given his home at 1835 Chicago Ave. in Evanston to the university. ——Dr. Clifford L. Carter was recently elected president of the Ottawa Township High School Board of Education. —— Dr. Charles O. Lane, West Frankfort, has retired after 46 years of practice. Dr. Lane has held various offices in the Franklin County Medical Society and was president of the Southern Illinois Medical Society in 1941, councilor for the Illinois State Medical Society, representing the 9th councilor district for five years, and vice-president of the Illinois State Medical Society in 1942.

Chicago

The Van Hoosen Ward.—The Dr. Bertha Van Hoosen geriatrics ward at the Women and Children's Hospital, dedicated Sept. 30, believed to be the first of its kind in Chicago devoted to the exclusive use of the aged, was equipped and sponsored by the Ladies in Blue, volunteer nurses' aids. The late Dr. Van Hoosen served on the staff of the hospital for 50 years.

Gehrmann Lectures.—The 1952 Gehrmann lectures were delivered recently at the University of Illinois College of Medicine by Sir Frank M. Burnett, M.D., director, Walter and Eliza Hall Institute for Medical Research, Melbourne, Australia, who spoke on "Lessons from Two Mosquito-Borne Diseases, Human Encephalitis and Myxomatosis of Rabbits" and "Genetic Studies of Influenza Virus."

Society News.—At 8 p. m. on Dec. 4 at the Drake Hotel, the North Side Branch of the Chicago Medical Society will have a discussion on "What's New in Medicine, Surgery and Obstetrics." Dr. Harry F. Dowling will discuss antibiotic therapy, and Drs. Paul K. Weichselbaum, dermatology; John A. Bigler, pediatrics; Geza de Takats, hypertension; Norris J. Heckel, urology; James H. Cross, surgery of the colon; Ormand C. Julian, vascular surgery; and Ralph A. Reis, obstetrics.

New Heart Station.—A new heart station has been established at Wesley Memorial Hospital to provide expanded facilities for studying heart diseases. Dr. Gerald R. Graham, director of cardiovascular research, will set up and direct the heart station. Dr. Graham was formerly associated with Western Reserve University School of Medicine in Cleveland, and for the past two years has served as research associate in the cardiovascular department in charge of clinical research at Michael Reese Hospital.

University Promotions. — The following promotions were recently announced by the University of Illinois College of Medicine: Dr. Harvey Horwitz, Dr. Willard L. Wood, and Dr. Evan M. Barton to clinical associate professor of medicine, and Dr. Robert G. Weiner to assistant professor of medicine; Dr. Frederic J. Pollock to assistant professor of otolaryngology, and Dr. Stanton A. Friedberg to clinical associate professor of otolaryngology; Dr. Lewis L. Haas to associate professor of radiology; Dr. Alexander M. Buchholz to clinical assistant professor of dermatology; Dr. James P. FitzGibbons to clinical assistant professor of obstetrics and gynecology; and Dr. Morris Green to assistant professor of pediatrics.

INDIANA

The Oliphant Library.—Dr. Jacob T. Oliphant of Farmersburg, chairman, Indiana State Board of Health, was recently honored by the decision of that board to name its library the "Jacob T. Oliphant Library." Dr. Oliphant is a past president of the Indiana State Medical Association.

Goldsmith Honors Dr. Cotton.—Dr. Stanley M. Cotton, aged 75, who has practiced medicine for 50 years, was recently honored by the town of Goldsmith, which dedicated Dr. Cotton Day to him. After a parade and program, a service plaque testifying to the esteem of the citizens of Goldsmith and Tipton County was presented. The community also gave him a console television set.

KANSAS

Gifts to University.—The University of Kansas Medical Center, Kansas City, announces that the Kress Foundation has made a gift of $150,000 for a continuation center building and a yearly gift of $30,000 to the University of Kansas Medical Center for expansion of the state medical postgraduate program to a regional one. The annual gift of $30,000 will allow extension of medical postgraduate education to the midwestern region outside of Kansas; and $20,000 a year is provided for a pilot program in practical nurse education. The gift of $150,000 for a continuation study building was conditional on the persons of greater Kansas City raising a matching sum, which was done. The building will provide offices for the postgraduate medical school, a few hotel-type rooms for housing physicians from a distance attending the postgraduate programs, dining facilities, an auditorium, and recreational facilities for medical students. Mrs. Edward H. Hashinger gave $75,000 in memory of her son, Dr. Jesse R. Battenfeld Jr., who was killed in a military plane accident in 1945. The Battenfeld Memorial Auditorium will seat the entire student body and faculty.

MAINE

December Clinics.—The state department of health and welfare announces that orthopedic clinics will be held as follows during December: Portland, Maine General Hospital, 9-11 a. m., Dec. 8; Lewiston, Central Maine General Hospital, 9-11 a. m., Dec. 12; Rumford, Community Hospital, 1:30-3 p. m., Dec. 17; Waterville, Thayer Hospital, 1:30-3 p. m., Dec. 18; and Machias, Normal School, 1:30-3 p. m., Dec. 10. Cardiac clinics will be held in Portland, Maine General Hospital, 9 a. m. to 12 noon every Friday with the exception of holidays, and in Bangor, Eastern Maine General Hospital, 9-11 a. m., Dec. 19. Hard-of-hearing clinics will be conducted in Waterville at the Thayer Hospital, 1:30-3:30 p. m., Dec. 3, and pediatric clinics in Bangor, Eastern Maine General Hospital, 1:30 p. m., Dec. 19; and Waterville, Thayer Hospital, 1:30 p. m., Dec. 2.

MARYLAND

State Medical Election.—The Medical and Chirurgical Faculty of the State of Maryland at its annual meeting in Baltimore elected Dr. Alan M. Chesney, Baltimore, president; Drs. Francis J. Geraghty, R. Carmichael Tilghman, Baltimore, and William F. Williams, Cumberland, vice-presidents; Dr. George H. Yeager, Baltimore, secretary; Dr. J. Albert Chatard, Baltimore, treasurer; and Dr. Everett S. Diggs, Baltimore, assistant secretary.

Personal.—Dr. Paul V. Lemkau, chief, division of mental hygiene, state department of health, was recently awarded the honorary degree of doctor of science by his alma mater, Baldwin-Wallace College, Berea, Ohio. Dr. Lemkau received his medical degree from the Johns Hopkins School of Medicine, Baltimore, where he is director of the division of mental hygiene in the school of hygiene and public health.——Dr. Caroline H. Callison has been appointed deputy state health officer of Queen Annes County. She previously served as health officer of Abbeville, McCormick, Marlboro, and Chesterfield counties in South Carolina.

MASSACHUSETTS

Joseph Pratt Lecture.—The House Officers' Association of New England Center Hospital, Boston, announces the first annual Joseph H. Pratt lecture, "Medicine's Number One Problem," by Dr. Howard A. Rusk, professor of physical medicine and rehabilitation, New York University College of Medicine, with Drs. Elliott P. Joslin and Heinrich G. Brugsch, Boston, as discussers. This program in the evening lecture series will be held at 7 p. m., Dec. 5, in the Stearns Auditorium of the hospital. All interested persons are invited to attend.

Fund to Aid Graduate Students.—The Massachusetts Memorial Hospital, Boston, has created the Henry M. Pollock Fund to help young physicians secure graduate training and to honor Dr. Henry M. Pollock who retired in 1945 as administrator of the hospital after 30 years of service. The fund, which will be available to interns and residents on a grant or loan basis, has been established with a bequest by the late Emily B. Preston. Through contributions and repayment of loans the fund is expected to grow and be perpetuated and thus continue to assist men and women to secure training that would not be possible otherwise.

Course in General Medicine.—As part of its course in general medicine the Postgraduate Medical Institute, Boston, offers the following lectures for December:

Dec. 3, Treatment of Diabetes, Reed Harwood, Charles Cabell Bailey, and Samuel B. Beaser, Boston.
Dec. 10, Hyperthyroidism and Hypothyroidism, Earle M. Chapman, Donald S. Fredrickson, and Oliver Cope, Boston.
Dec. 17, Common Gynecological Problems, C. Langdon Parsons, Boston, and Chrisopher J. Duncan, Brookline.

The first two lectures will be held in the Joslin Amphitheatre, Cancer Research Building, New England Deaconess Hospital, Boston, and the third in the New Cheever Amphitheatre, Dowling Building, Boston City Hospital.

NEW YORK

Society News.—Thirty-five physicians who have given a total of more than 2,000 years in the practice of medicine in Erie County were recently honored by the Erie County Medical Society and its woman's auxiliary at a dinner in the Hotel Statler, Buffalo. Dr. Edward J. McCormick, Toledo, Ohio, President-Elect of the American Medical Association, addressed the meeting. Responding for the 50 year physicians were Dr. William H. Mansperger, oldest living graduate of the University of Buffalo Medical School (1887), and Dr. Robert E. DeCeu, an 1899 graduate who had been nominated by the Erie County Society as outstanding general practitioner of the year.

Cardiovascular Fellowships.—Fellowships for postgraduate courses on diseases of the heart and vascular system are available for the practicing physician at the Post-Graduate Medical School of the New York University-Bellevue Medical Center and Columbia University College of Physicians and Surgeons under the fellowship program of the Medical Society of the State of New York, the New York City Department of Health, and the state health department. The fellowships cover tuition for each course, except for a registration fee to be paid by the physician. No funds are available for living expense stipends this year. Information and application blanks may be obtained from the New York State Department of Health, 39 Columbia St., Albany; Postgraduate Medical School of the New York University-Bellevue Medical Center, 477 First Ave., New York 16; and Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32.

Personal.—Dr. Louis Berger, president of the Kings County Medical Society, has been named chairman of the Brooklyn Cancer Committee, to succeed the committee's late founder, Dr. S. Potter Bartley. ——Dr. Maxwell Herbert Poppel has been promoted to professor of radiology at the Post-Graduate Medical School of the New York University-Bellevue Medical Center and appointed director of x-ray service of Bellevue Hospital. ——Joseph V. DePorte, Ph.D., director of the state health department's office of vital statistics since 1925, has been granted a year's leave of absence to become a United Nations expert on vital statistics. Dr. DePorte will serve at the Inter-American Center of Biostatistics, Santiago, Chile, which is being organized by the Chilean government in collaboration with the United Nations and the World Health Organization.——Dr. John K. Meneely Jr. has resigned as assistant dean of Albany Medical College to enter private practice.

Dr. George Whipple Resigns as Dean.—Dr. George H. Whipple, dean of the University of Rochester School of Medicine and Dentistry for about 32 years, has announced his resignation effective next June. He will continue as professor of pathology. In 1934 Dr. Whipple was a joint winner of the Nobel Prize for his research on the nature and treatment of anemia. The University of Glasgow, Scotland, last year chose him as one of 10 distinguished Americans to receive an honorary degree at its 500th anniversary celebration. At its centennial commencement in 1950, the University of Rochester broke its tradition of not conferring honorary degrees on members of its own staff, when it awarded a doctor of laws degree to him. In October of that year, the medical school amphitheater was remodeled and named Whipple Auditorium. Dr. Whipple holds honorary degrees from the University of Athens, Colgate, Yale, Johns Hopkins, Tulane, Western Reserve and Wesleyan universities, the University of California, the University of Buffalo, Trinity College, and the University of Chicago.

New York City

Graduate Program in Neurology.—The State University College of Medicine at New York City now offers five year courses of graduate training in neurology and in neurosurgery. Dr. E. Jefferson Browder, executive officer of the recently established department of neurology and neurosurgery, with clinical services at Kings County Hospital, Brooklyn, is director of the training program in neurosurgery, and Dr. Abraham M. Rabiner is director of the graduate program in neurology.

Pregnancy Clinic for Diabetics.—The maternity service of Mount Sinai Hospital, Fifth Ave. and 100th St., has opened a clinic for pregnant diabetics. Dr. Henry Dolger, a former president of the New York Diabetes Association, will be physician-in-charge. The new clinic will be open Thursday mornings for women unable to afford private medical care. Visits will be by appointment only. The clinic will be staffed by obstetricians, pediatricians, and specialists in diabetes, all of whom will supervise the patient's progress at each visit.

Lectures on Therapy. — The following lectures on recent advances in therapy will be given at the Mount Sinai Hospital (Fifth Ave. at 99th St.):

Dec. 10, Contribution of Radioisotopes to the Control of Disease, Joseph F. Ross, Framingham, Mass.
Jan. 7, 1953, Atherosclerosis: A Problem in Newer Public Health, Ancel B. Keys, Ph.D., Minneapolis.
Jan. 21, Treatment of Congenital Adrenal Hyperplasia with Cortisone, Lawson Wilkins, Baltimore.
Feb. 4, Rehabilitation: A Medical Responsibility, Howard A. Rusk, New York.
Feb. 11, Principles of Hormone Therapy in Cancer, Ira T. Nathanson, Boston.
March 4, Critical Appraisal of the Newer Treatment for Rheumatoid Arthritis, Richard H. Freyberg, New York.
March 18, Therapy of Tuberculosis, James B. Amberson, New York.
April 8, Correlation of the Principles of Action and Clinical Usage of Streptococcal Enzymes, Streptokinase and Streptodornase, William S. Tillett, New York.

NORTH CAROLINA

Dr. Crile to Speak at Gastonia.—The medical staff of the Gaston Memorial Hospital, Gastonia, is sponsoring a medical symposium Dec. 10. The guest speaker, Dr. George Crile Jr., Cleveland, will discuss "Treatment of Peptic Ulcer" and "Diseases of the Thyroid." All physicians in North and South Carolina are invited to this symposium, which will open at 4 p. m. at the Masonic Temple. Dinner at 7 p. m. will be followed by an evening clinical session.

Personal.—Dr. Malcolm P. Tyor, former associate in medicine at the Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, has joined the Medical Division of the Oak Ridge (Tenn.) Institute of Nuclear Studies as a clinician.——

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Dr. Guy L. Odom, assistant professor of neurosurgery, the Duke University School of Medicine, Durham, recently served as visiting lecturer to students at McGill University Faculty of Medicine, Montreal.

Symposium on Therapy.—On Dec. 9-10, the Duke University School of Medicine, Durham, will offer as its annual symposium "Advances in Therapy." The following program will be presented on Tuesday:

Ladislas J. Meduna, Chicago, CO-2 Treatment of Psychosomatic Disorders.
James Toman, Ph.D., Chicago, Mechanism of Action in Relation to Clinical Effectiveness of Anticonvulsant Drugs.
Cornelius P. Rhoads, New York, Trends in Management of Neoplastic Disease.
Harry Eagle, Bethesda, Md., Antibiotic Therapy.
J. Maxwell Chamberlain, New York, Segmental Resection in Surgical Treatment of Pulmonary Tuberculosis (400 Cases).

On Wednesday the program will include:

Charles P. Bailey, Philadelphia, Intracardiac Surgery.
Lewis Dexter, Boston, Pathological Physiology of Mitral Stenosis and its Surgical Implications.
Samuel A. Levine, Boston, Cardiologist's View of Mitral Valvuloplasty.
Irving S. Wright, New York, Treatment of Myocardial Infarction.
Joseph J. Bunim, Bethesda, Md., Prevention and Treatment of Rheumatic Fever.

OHIO

Society News.—At a recent meeting of the Ohio Academy of General Practice, Dr. Thomas E. Rardin, Columbus, assumed office as president; Dr. George H. Lemon, Toledo, was chosen president-elect; and Dr. Earl D. McCallister, Columbus, was reelected secretary-treasurer.——At the annual meeting of the Ohio State Society of Anesthesiologists in Youngstown, Dr. Albert J. Fisher, Youngstown, was elected president; Dr. A. William Friend, Akron, vice-president; and Dr. Brant B. Sankey, Cleveland, secretary-treasurer.

Personal.—Dr. George M. Guest, professor of research pediatrics, University of Cincinnati College of Medicine, was recently made a Chevalier of the Legion of Honor, in recognition of his "eminent services to medical science and of helpful assistance he has always shown to young French doctors visiting the United States."——Dr. Allan C. Barnes, chairman, department of obstetrics and gynecology, Ohio State University College of Medicine, Columbus, has been awarded the annual foundation prize by the American Association of Obstetricians, Gynecologists and Abdominal Surgeons.

Mental Hygiene Clinic to Be Established.—A mental hygiene clinic, serving the Columbus area, will be established this year in the Ohio State University Health Center. Plans for the clinic have been formulated by the department of psychiatry of Ohio State University College of Medicine and the division of mental hygiene, state department of public welfare. Space will be provided in the Starling-Loving Annex, formerly known as the University Hospital. Waiting rooms and treatment rooms will accommodate more than 30 patients a day. The Division of Mental Hygiene has authorized a budget of some $70,000 for operating the clinic, with the university providing space, maintenance, remodeling, and utilities. The Council of Jewish Women of Columbus is cooperating in furnishings and volunteer staffing.

OREGON

University News.—The following have been appointed to the faculty of the University of Oregon Medical School, Portland: Dr. Thomas B. Fitzpatrick, formerly associate professor at the University of Michigan Medical School, was named professor of dermatology and syphilology, with Dr. Aaron B. Lerner, who was also an associate professor of dermatology and syphilology at the Michigan school, as associate professor. Dr. Charles T. Dotter, formerly assistant attending radiologist at the New York Hospital and assistant professor of radiology at Cornell University College of Physicians and Surgeons, is now head of the division of radiology at the University of Oregon.

PENNSYLVANIA

Society News.—At the annual meeting of the Pennsylvania Psychiatric Society, Dr. Philip Q. Roche, Philadelphia, was elected president; Dr. Frederick H. Allen, Philadelphia, president-elect; and Dr. M. Royden C. Astley, Philadelphia, secretary-treasurer. Plans were made for two departures in society activity: (1) a week-end spring meeting with a well-organized scientific program and (2) all-day consulting sessions using visiting psychiatrists.

Philadelphia

Hospital News.—The 66th annual banquet of the Association of Ex-Resident and Resident Physicians of the Philadelphia General Hospital will be held Dec. 2 at 7 p. m. at the Penn-Sheraton Hotel, 39th and Chestnut Sts. For reservations, write to the secretary-treasurer, Dr. Robert C. McElroy, Rm. 514, 133 S. 36th St., Philadelphia 4.

Personal.—Dr. Chevalier L. Jackson was recently awarded a gold medal and a certificate of merit by the Italian Federation Against Tuberculosis at a meeting arranged for him by the Italian Chapter of the American College of Chest Physicians at the Carlo Forlanini Institute in Rome. Dr. Jackson presented a paper entitled "Bronchopulmonary Segments."

Electron Microscope for Cancer Research.—A $20,000 electron microscope, imported from Holland and capable of magnifications more than 60,000 times, has been purchased by the University of Pennsylvania for use in cancer research. The purchase was made possible by a special grant from the U. S. Public Health Service in support of the cancer research work of Dr. Dale Rex Coman, professor of experimental pathology in the university's school of medicine, in whose laboratories the apparatus has been installed.

Pittsburgh

Division of Microbiology.—A new division of microbiology will be available to research departments and fellowships of the Mellon Institute for specialized advice and short-time studies in bacteriology and for assistance in investigations concerning yeasts and molds.

Memorial Lecture.—Dr. Robert McCance of the department of experimental medicine, University of Cambridge, England, will present a Renziehausen memorial lecture entitled "The Effect of Undernutrition on the Composition of the Body" at the University of Pittsburgh School of Medicine Dec. 9 at 5:15 p. m.

TENNESSEE

New Postgraduate Program.—The University of Tennessee College of Medicine, Memphis, through its general practice office announces a new type of postgraduate training designed for general practitioners. One qualified practitioner at a time will be accepted into the department for a review course of two weeks to one month. He will be allowed to participate in active work at about the resident level and will be given an opportunity to participate in current therapeutic and diagnostic methods. There will be no lectures, the student's time being devoted entirely to work on the wards, attendance at staff rounds, and staff conferences. Physicians will be accepted from Tennessee, Arkansas, Missouri, Kentucky, Mississippi, and Alabama.

TEXAS

Rheumatism Association to Meet in Dallas.—The Texas Rheumatism Association will hold its annual meeting Dec. 5 at the Adolphus Hotel, Dallas, under the presidency of Dr. Robert H. Mitchell, Fort Worth. Dr. Charles L. Short, assistant professor of medicine, Harvard Medical School, Boston, the honor guest speaker, will present papers on "Diagnosis and Treatment of Rheumatoid Arthritis" and "Recent Advances in the Treatment of Gouty Arthritis.

Conference on General Surgery.—The Dallas Southern Clinical Society, with the cooperation of the Dallas Society of General Surgeons and the faculty of the Southwestern Medical School of the University of Texas, will present a postgraduate conference in general surgery Dec. 8-10. Tuesday morning there will be a

symposium on preventable deaths and Tuesday afternoon a symposium on trauma. Dr. Harrell C. Dodson Jr., Oklahoma City, the guest speaker, will discuss diagnosis and management of (1) acute pancreatitis, (2) appendicitis and its complications, and (3) carcinoma of the breast. At the dinner at the Melrose Hotel, Monday, 6:30 p. m., Dr. Dodson will speak on "Surgical Treatment of Peptic Ulcer," and on Tuesday at 8 p. m. during the joint meeting with the Dallas County Medical Society, he will participate with Drs. Ben J. Wilson and Donald W. Seldin, both of Dallas, in a symposium on fluid balance, for which Dr. Ernest E. Muirhead, Dallas, will serve as moderator.

WASHINGTON

Personal.—Dr. Raymond J. LaRue recently received a life membership certificate to the Castle Rock Lions Club for his service to the community. Last year Dr. LaRue was awarded a plaque "in appreciation from the people of Castle Rock for his unselfish devotion to their welfare in keeping with the humanitarian principles of his profession."

State Medical Election. — At its recent annual convention the Washington State Medical Association installed Dr. Charles E. Watts of Seattle as president, chose Dr. Alvia G. Young of Wenatchee as president-elect, and reelected Dr. Irvia C. Munger Jr. of Vancouver as vice-president, and Dr. Bruce M. Zimmerman of Seattle as secretary-treasurer.

WEST VIRGINIA

Society News.—Dr. Karl J. Myers, Philippi, was elected president of the West Virginia Tuberculosis and Health Association at its annual meeting at Charleston; Dr. Harold H. Howell, Madison, was named vice-president; and Mr. Lester Harer, Logan, secretary. Mr. Robert C. Hawkins, Charleston, was reelected treasurer.— At its annual meeting in Morgantown, the West Virginia Heart Association installed Dr. W. Frederick Richmond, Beckley, as president and named Dr. Walter C. Swann, Huntington, president-elect; Dr. Francis J. Gaydosh, Wheeling, vice-president; Dr. William E. Bray, Huntington, secretary; and Mr. R. E. Plott, Charleston, treasurer.

WISCONSIN

Society Election.—At the annual dinner of the State Medical Society of Wisconsin Dr. Joseph C. Griffith, Milwaukee, was installed as president. Dr. Horace K. Tenney Jr., Madison, who was named president-elect at the final session of the house of delegates, will assume office in October, 1953.

Peterson Day in Independence.—Dr. Charles F. Peterson, aged 81, who has practiced in Independence for 45 years, was recently honored when the Peterson Day activities, sponsored by the Lions Club, were held at City Hall. Judge Grover L. Broadfoot, justice of the state supreme court, was the main speaker of the day. A leather chair was presented to Dr. Peterson.

WYOMING

Narcotic Violations. — Dr. Robert H. Jessen, Hanna, pleaded guilty in the U. S. District Court in Wyoming to a charge of violating the Federal Narcotic Law; on Sept. 12 his sentence of 1½ years was suspended by Federal Judge T. Blake Kennedy and he was placed on probation for a like period.——Dr. William W. Horsley, Lovell, pleaded *nolo contendere* in the U. S. District Court at Cheyenne to a violation of the Federal Narcotic Law. On Aug. 5 his sentence of two years was suspended, and he was placed on probation for a like period. He was also fined $500.

Dr. Holland Day.—Evanston recently proclaimed Dr. Holland Day, which was observed with a parade, window displays containing pictures of the physician and of the babies whom he had delivered, and an evening reception at Legion Hall. A wrist watch was presented to him. Dr. Josiah H. Holland, who recently announced his decision to retire, has practiced medicine in Evanston for 38 years, has served as medical examiner of the Uinta County Selective Service Board since 1941, and was medical director of the Wyoming State Hospital in 1944. He was Evanston mayor from 1926 to 1940 and from 1942 to 1946.

GENERAL

Medical Stamps.—The Dr. Salvador B. Gautier Hospital at Cuidad Trujillo, Dominican Republic, is shown on a recent series of regular and air mail stamps of that country. Czechoslovakia's unified service is honored on three new stamps.

Meeting on Nervous and Mental Diseases.—The Association for Research in Nervous and Mental Disease will hold its annual meeting at the Hotel Roosevelt, New York, Dec. 12-13, under the presidency of Dr. H. Houston Merritt, New York. Twenty-eight presentations will be made in development of the general theme "Metabolic and Toxic Diseases of the Nervous System."

Abstracts for Experimental Biology Meeting.—The Federation of American Societies for Experimental Biology, which will hold its annual meeting in Chicago, April 6-10, 1953, announces the following deadlines for receipt of abstracts by society secretaries: physiology, Dec. 22; pathology, pharmacology, immunology, biochemistry, and nutrition, Dec. 29.

Research in Medicinal Chemistry.—A new multiple fellowship at Mellon Institute, Pittsburgh, has been established by Parke, Davis & Company of Detroit to carry on long-range investigations in synthetic organic chemistry, with particular emphasis on the preparation of compounds for combating viruses and tumors.

Booklet on Child Health.—The New York State Study Committee of the American Academy of Pediatrics, the New York State Citizens Committee of 100 for Children and Youth, the Medical Society of the State of New York, and the New York State Department of Health have published an illustrated booklet "Child Health Is Everybody's Business," which is intended to aid physicians, educators, community health and welfare leaders, and others interested in health services for children and in steps that may be necessary to correct deficiencies. Subjects include hospital care for children, special services for premature infants and handicapped children, dental care, and health supervision of infants and preschool children.

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Western Surgical Association.—The Western Surgical Association will hold its annual meeting Dec. 4-6 at the Shamrock Hotel, Houston, Texas, under the presidency of Dr. George B. Packard of Denver. Forty-four papers will be presented. Wednesday has been reserved for a clinical program, sponsored by the department of surgery, Baylor University College of Medicine, Houston. There will be an operative clinic at Veterans Administration Hospital (8-11 a. m.), and a clinic at Methodist Hospital (11 a. m.-12:30 p. m.) with presentation of cases. During the afternoon nine papers will be given at Baylor University College of Medicine. Dr. Robert L. Sanders, Memphis, will be toastmaster at the annual dinner on Friday and J. Brian Eby, Ph.D., of Houston will deliver an address.

Study of Negro Health Practices.—A one year study of Negro health practices in southern rural communities will be conducted by Tuskegee Institute under a grant of $15,000 from the Health Information Foundation. The study will seek to identify prevailing Negro health practices, determine what factors influence such practices, and formulate principles for improving health in southern rural areas. Answers will be sought to such questions as how traditional health behavior is transmitted from one generation to another, the extent to which such practices are publicly rejected but privately used, opportunity for change, and the influences of technology, mass culture, personal contact, and communications media. Tuskegee and the foundation plan to publish a report on the study.

Meeting on Obstetrics and Gynecology.—A clinical meeting of the American Academy of Obstetrics and Gynecology will be held Dec. 15-17 at the Palmer House, Chicago, under the presidency of Dr. Carl P. Huber, Indianapolis. Round-table groups limited to 40 fellows each have been scheduled for the afternoon sessions. Forty-eight subjects will be discussed, each subject being treated twice (3:30-4:20 p. m., and 4:40-5:30 p. m.), allowing each fellow to participate in two discussion groups each after-

noon. Fellows are advised to give multiple choices (at least five for each of the three days) for each of the six discussion periods, since assignments will be made in the order in which reservations are received. The banquet at 7:30 p. m. Tuesday will be preceded by the president's reception. Tickets cost $7.50 per person. The registration fee of $25 will be omitted for fellows of the academy.

Chest Physicians Meet in Denver.—The interim session of the American College of Chest Physicians will be held at the Cosmopolitan Hotel, Denver, Nov. 30 to Dec. 1. On Sunday the Rocky Mountain Chapter will sponsor a program, which will include the following round-table luncheon discussions:

When Should Artificial Pneumothorax Be Terminated? Edward W. Hayes, Monrovia, Calif., and Louis Mark, Columbus, Ohio; moderator, Harold M. Van Der Schouw, Wheat Ridge, Colo.

Diagnosis and Treatment of Carcinoma of the Lung, William A. Hudson, Detroit, and Seymour M. Farber, San Francisco; moderator, John B. Grow, Denver.

Management of the Cardiac Patient, John F. Briggs, St. Paul, Alvis E. Greer, Houston, Texas, and Alfred Goldman, Beverly Hills, Calif.; moderator, W. Bernard Yegge, Denver.

After dinner in the Sanatorium of the Jewish Consumptives' Relief Society, Spivak, Colo., the medical staff will hold an x-ray diagnostic conference at 8 p. m. On Monday at 9.30 a. m. there will be a tour through the cardiopulmonary laboratory of the National Jewish Hospital, Denver.

Medical Journalism Award.—Through a gift from its secretary, Dr. Harold Swanberg, Quincy, Ill., the American Medical Writers' Association has established an honorary award for distinguished service in medical journalism. Each year at the association's annual meeting a plaque is to be given "for accuracy, clarity, and conciseness of published articles, editorials, and other material, and/or distinguished and meritorious service, rendered by a United States or Canadian medical periodical." Nominations for the award must be made in writing; must be accompanied by an exhibit, in scrapbook form, of supporting material as published during the preceding year with dates of publication; and must be sent on or before Feb. 1 to the secretary, American Medical Writers' Association, W.C.U. Bldg., Quincy, Ill. No medical periodical may receive the award more than once in a decade.

Hematology Grants Awarded.—The Hematology Research Foundation announces the award of the Ruth Berger Reader fellowship to Dr. Herbert M. Rubinstein at Michael Reese Hospital, Chicago. The following grants for research in blood diseases were also made: $3,800 to Dr. Robert M. Kark, University of Illinois, Chicago, toward his project "In Vivo Studies on Eosinophilic Leukemia"; $1,500 to Dr. Israel Davidsohn, Mt. Sinai Hospital, Chicago, for his project "Hemolytic Anemia: Serologic and Experimental Studies"; $6,300 to Dr. Allen H. Minor, Lenox Hill Hospital, New York, toward his project "Preservation of Platelet Concentrates; Their Use as Symptomatic Replacement Therapy in Leukemia and Other Blood Diseases"; and $3,000 to Dr. Howard L. Alt, Northwestern University Medical School, Chicago, for his project "The Protective Effects of Spleen and Other Tissue Homogenates on Bone Marrow Function Following X-Irradiation."

Survey of Status of Psychology.—A study of the development and status of research and education in psychology in the United States is being undertaken by the American Psychological Association with financial support from the National Science Foundation. The study will include a survey of methodology, theory, and applications of psychology to determine the importance of psychology to other scientific fields. Problems in psychological education, manpower, research, communications, and administration will also be examined. The project is sponsored by the foundation as one of a series of studies of specific fields that will assist the foundation in developing national science policy. The study will cost about $40,000 and will be directed by a committee appointed by the association, serving without compensation. The chairman is Dael L. Wolfle, Ph.D., Commission on Human Resources and Advanced Training, Conference Board of Associated Research Councils, Washington, D. C.

Pathologists Meet in San Francisco.—A joint meeting of the Southwestern Region of the College of American Pathologists and the California Society of Pathologists will be held Dec. 6-7 at the Fairmont Hotel, San Francisco. On Sunday the semiannual slide conference will be sponsored by the Cancer Commission of the California Medical Association, with Dr. Henry D. Moon, San Francisco, as chairman and Dr. James F. Rinehart, San Francisco, as moderator. Presentations by invitation during the Saturday sessions will include the following:

Histochemical Diversity of Hyalin in the Islets of Langerhans, Wilfred E. Toreson and James F. Rinehart, San Francisco.

Present Concepts of Blood Clotting Processes, Arnold G. Ware, Ph.D., Los Angeles.

Advances in Immunohematology, Phillip Sturgeon, Los Angeles.

Cortisone and ACTH in the Management of Rh Incompatabilities, Oscar B. Hunter Jr., Washington, D. C.

System of Reports and Records for the Department of Pathology, Arthur E. Rappoport, Youngstown, Ohio.

Improved One-Stage Method for Measuring Prothrombin, Arnold G. Ware, Ph.D., Los Angeles.

Round-table luncheon discussions will include one designed especially for residents in pathology; also blood bank problems; interpathologist relationships; the technician training schools; and hospital photography. A fellowship hour will be followed by dinner, during which Dr. Samuel R. Sherman, San Francisco, will discuss "Influence of Current Union Labor Health and Welfare Plans on the Present and Future Practice of Medicine."

Endocrinology Society Awards.—The Endocrine Society has announced its awards and fellowships for 1953. These fellowships may be granted to a person who possessses a Ph.D. or M.D. degree or to a candidate for either of these degrees. The stipend, which will not exceed $5,000, may be divided into two fellowships in accordance with the qualifications of the appointee. The 1953 Schering fellowship will afford $5,000 and will henceforth be given in the same amount on alternate years. The Ayerst, McKenna, and Harrison fellowship will not be awarded in 1953, in order that it may accumulate toward a $5,000 fellowship to be awarded in 1954. The Squibb Institute for Medical Research award has been increased from the original $1,000 to $2,500. The Ciba award, given in recognition of the meritorious accomplishment of an investigator, not more than 35 years old, in the field of clinical or preclinical endocrinology, has been increased from the original $1,200 to $1,800. If within 24 months of the date of the award the recipient chooses to use it toward further study in a laboratory other than that in which he is presently working, it will be increased to $2,500. Each member of the society may make one nomination for each fellowship or award. The nomination should be accompanied by a statement of the importance of the nominee's contributions and by a bibliography of the nominee's most important publications, with reprints if possible. The nominations should be made on special application forms, which may be obtained from the Secretary, Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City, and returned to him not later than March 1, 1953.

Society News.—Among the officers of the American Association of Railway Surgeons for 1952-1953 are Dr. Augustus J. O'Brien, Ironwood, Mich., president; Dr. Joseph H. Francis, Memphis, Tenn., president-elect; Dr. Chester C. Guy, Chicago, secretary; and Dr. Theodore L. Hansen, Chicago, treasurer. The association will hold its next annual meeting at the Drake Hotel in Chicago, April 7-9, 1953.——The American Association for the Surgery of Trauma recently elected Dr. Martin C. Lindem, Salt Lake City, president; Dr. Eslie Asbury, Cincinnati, president-elect; Dr. Robert H. Kennedy, New York, vice-president; Dr. James K. Stack, Chicago, secretary; Dr. Raymond Householder, Chicago, treasurer; and Dr. Harrison L. McLaughlin, New York, recorder.——At the annual meeting of the Minnesota-Dakota-Manitoba Orthopedic Society, the following officers were elected: Dr. William A. Gardner, Winnipeg, Manibota, president; Dr. John C. Ivins, Rochester, Minn., secretary; and Dr. Wesley H. Burnham, Minneapolis, treasurer.——The following have been named officers of the Central States Society of Industrial Medicine and Surgery: Dr. Elston L. Belknap, Milwaukee, president; Dr. Donald C. Conzett, Dubuque, Iowa, president-elect; Dr. Johannes M. L. Jensen, Chicago, vice-president; and Dr. Charles M. Drueck, Chicago, secretary-treasurer.——At its annual meeting in Milwaukee the American Association of Blood Banks

Installed Dr. Israel Davidsohn of Chicago as president and named Dr. Aaron Kellner, New York, president-elect and Dr. Merlin L. Trumbull, Memphis, vice-president. The sixth annual meeting of the association will be held in Chicago, Oct. 17-20, 1953, at the La Salle Hotel.——Dr. John J. Shea, Memphis, was named president-elect of the American Academy of Ophthalmology and Otolaryngology at its annual meeting in Chicago. The incoming president is Dr. Frederick C. Cordes of San Francisco. The next annual meeting will be in Chicago, and the following year's session will be held in New York in conjunction with the 17th International Congress of Ophthalmology.——At its annual meeting in Hot Springs, Va., the American Association of Obstetricians, Gynecologists and Abdominal Surgeons installed Dr. Nicholson J. Eastman, Baltimore, president; and chose Dr. Herbert E. Schmitz, Chicago, president-elect, and Dr. Thaddeus L. Montgomery, Philadelphia, vice-president. Drs. William F. Mengert, Dallas, Texas, and Ward F. Seeley, Detroit, were re-elected secretary and treasurer, respectively.——At its annual meeting the American Therapeutic Society elected Dr. Francis M. Pottenger Jr., Monrovia, Calif., as president; Drs. Elbert L. Persons, Durham, N. C., Ray W. Kissane, Columbus, Ohio, and Walter E. Vest Jr., Denver, as vice-presidents; Dr. Oscar B. Hunter Jr., Washington, D. C., secretary; and Dr. Howard Wakefield, Chicago, treasurer. The next annual meeting of the society will be held at the Biltmore Hotel, New York, May 28-31, 1953.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories, and possessions in the weeks ended as indicated:

Area	Nov. 8, 1952	Nov. 1, 1952	Nov. 10, 1951
New England States			
Maine	2	8	1
New Hampshire	2	2	..
Vermont	5	3	..
Massachusetts	9	18	4
Rhode Island	6	2	1
Connecticut	11	6	7
Middle Atlantic States			
New York	50	84	27
New Jersey	19	30	4
Pennsylvania	27	56	21
East North Central States			
Ohio	50	122	12
Indiana	43	31	10
Illinois	95	126	27
Michigan	91	121	36
Wisconsin	57	79	29
West North Central States			
Minnesota	116	146	13
Iowa	50	113	10
Missouri	47	33	20
North Dakota	16	10	1
South Dakota	29	49	1
Nebraska	34	37	8
Kansas	30	65	18
South Atlantic States			
Delaware	2	2	1
Maryland	5	39	..
District of Columbia	..	..	1
Virginia	11	13	4
West Virginia	14	21	7
North Carolina	4	22	4
South Carolina	5	7	..
Georgia	6	11	7
Florida	18	18	6
East South Central States			
Kentucky	24	33	15
Tennessee	14	10	13
Alabama	3	5	11
Mississippi	3	12	18
West South Central States			
Arkansas	8	7	6
Louisiana	4	17	22
Oklahoma	21	15	7
Texas	23	26	49
Mountain States			
Montana	7	12	1
Idaho	12	13	7
Wyoming	14	7	12
Colorado	11	14	11
New Mexico	1	13	8
Arizona	10	19	8
Utah	31	56	13
Nevada	7	6	..
Pacific States			
Washington	37	47	21
Oregon	24	36	17
California	167	197	106
Territories and Possessions			
Alaska	12	3	..
Hawaii	1	2	1
Puerto Rico	3	6	3
Total	1,291	1,831	629

LATIN AMERICA

Congress of Military Medicine and Pharmacy.—The 14th International Congress of Military Medicine and Pharmacy will be held in Montevideo, Uruguay, March 1-7, 1953. It will be open to all officials of health services, active and in the reserve, and to all physicians, dentists, and pharmacists. The medical section will consider (1) military medicine as a specialty; (2) national medical organization in war time; (3) functioning of the health service in high mountain warfare; and (4) modern conception of front line treatment of wounds and burns. The general secretariat of the congress has its offices at Direccion General del Servicio de Sanidad Militar, Avenida 8 de Octubre No. 3040 esquina Mariano Moreno, Montevideo, Uruguay.

CORRECTION

Cardiac Arrest and Resuscitation.—In THE JOURNAL, Sept. 20, 1952, page 213, in the sixth and seventh lines, immediately following the statistical table, the words "a non-breathing (Digby-Leigh) valve" should read "a non-rebreathing valve."

Murless Head Extractor.—In the article by Weisman and Carrabba, entitled "Experiences with the Murless Head Extractor in Cesarean Section," in the Nov. 22, 1952, issue of THE JOURNAL, page 1209, the 10th and 11th lines of the third paragraph should read "double hinge joint, which is built into the normal diameter of the shaft. The shaft, which connects the blade to . . ."

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.
1952 Clinical Session, Denver, Dec. 2-5.
1953 Annual Session, New York, June 1-5.
1953 Clinical Session, St. Louis, Dec. 1-4.

ANNUAL CONGRESS ON INDUSTRIAL HEALTH, Drake Hotel, Chicago, Jan. 21-22. Dr. Carl M. Peterson, 535 N. Dearborn St., Chicago 10, Secretary.

AMERICAN ACADEMY OF DERMATOLOGY AND SYPHILOLOGY, Palmer House, Chicago, Dec. 6-11. Dr. John E. Rauschkolb, P.O. Box 6565, Cleveland 1, Secretary.

AMERICAN ACADEMY OF OBSTETRICS AND GYNECOLOGY, Palmer House, Chicago, Dec. 15-17. Dr. Ralph A. Reis, 116 S. Michigan Blvd., Chicago 3, Secretary.

AMERICAN ASSOCIATION OF MEDICAL CLINICS, Cosmopolitan Hotel, Denver, Nov. 30-Dec. 1. Dr. Edwin P. Jordan, Box 114, Charlottesville, Va., Executive Director.

AMERICAN COLLEGE OF CLINIC ADMINISTRATORS, Chase Hotel, St. Louis, Dec. 6-7. Dr. Eva M. Rule, 106 North Silver Street, Olney, Ill., Secretary.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY:
MIDDLE SECTION, Drake Hotel, Chicago, Jan. 19. Dr. Ralph J. McQuiston, 20 North Meridian St., Indianapolis 4, Chairman.

EASTERN SECTION, Hotel Syracuse, Syracuse, N. Y., Jan. 7. Dr. Francis W. Davison, Danville, Pa., Chairman.

WESTERN SECTION, Elks Club, Los Angeles, Jan. 24. Dr. Howard P. House, 1136 West Sixth St., Los Angeles 14, Chairman.

AMERICAN PSYCHOANALYTIC ASSOCIATION, New Yorker Hotel, New York, Dec. 4-7. Dr. LeRoy M. A. Maeder, 1910 Rittenhouse Square, Philadelphia 3, Secretary.

ASSOCIATION FOR RESEARCH IN NERVOUS AND MENTAL DISEASES, Hotel Roosevelt, New York, Dec. 12-13. Dr. Clarence C. Hare, 700 West 168th St., New York 32, Secretary.

ASSOCIATION OF STATE AND TERRITORIAL HEALTH OFFICERS, Washington, D. C., Dec. 8-11. Dr. John D. Porterfield, 306 Ohio Depts. Bldg., Columbus 15, Ohio, Secretary.

NORTHWEST SOCIETY FOR CLINICAL RESEARCH, Seattle, Jan. 16-17. Dr. Arthur L. Rogers, 1216 S.W. Yamhill St., Portland 5, Ore., Secretary

PUERTO RICO MEDICAL ASSOCIATION, Santurce, Dec. 10-14. Dr. Luis R Guzman-Lopez, Box 9111, Santurce, Secretary.

RADIOLOGICAL SOCIETY OF NORTH AMERICA, Netherland Plaza and Sheraton-Gibson Hotels, Cincinnati, Dec. 7-12. Dr. Donald S. Childs, 713 East Genesee St., Syracuse 2, N. Y., Secretary.

SECTIONAL MEETINGS, AMERICAN COLLEGE OF SURGEONS: CINCINNATI, The Netherland Plaza, Jan. 19-21. Dr. M. M. Zinninger, Cincinnati General Hospital, Cincinnati 29, Chairman.

SOUTHERN SECTION, AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY, Andrew Jackson Hotel, Nashville, Tenn., Jan. 12. Dr. Lester A. Brown, 490 Peachtree St., N.E., Atlanta 3, Ga., Chairman.

SOUTHERN SURGICAL ASSOCIATION, Hollywood, Fla., Dec. 9-11. Dr. John C. Burch, 2112 West End Ave., Nashville 5, Tenn., Secretary.

WESTERN SURGICAL ASSOCIATION, The Shamrock, Houston, Texas, Dec. 4-6. Dr. Michael L. Mason, 154 East Erie St., Chicago 11, Secretary.

INTERNATIONAL

CONGRESS OF INTERNATIONAL LEAGUE AGAINST RHEUMATISM, Geneva and Zurich, Switzerland, Aug. 24-29, 1953. For information write: Dr. W. Tegner, The London Hospital, London E.1, England.

CONGRESS OF THE INTERNATIONAL SOCIETY OF SURGERY, Lisbon, Portugal, Sept. 15-20, 1953. Dr. L. Dejardin, 141, rue Belliard, Brussels, Belgium, General Secretary.

INTER-AMERICAN SESSION, American College of Surgeons, Paulista Medical Association Bldg., Sao Paulo, Brazil, Feb. 9-12, 1953. Dr. Moacyr Eyck Alvaro, 1151 Conselacao, Sao Paulo, Brazil, Chairman.

INTERNATIONAL CONGRESS OF AUDIOLOGY, Groningen, Netherlands, June 5-6, 1953. Dr. Gunnar Holmgren, Strandvagen 5A, Stockholm, Sweden, President.

INTERNATIONAL CONGRESS OF ELECTROENCEPHALOGRAPHY AND CLINICAL NEUROPHYSIOLOGY, Boston, Mass., U. S. A., Aug. 18-21, 1953. Dr. Robert S. Schwab, Massachusetts General Hospital, Boston 14, Mass., U. S. A., Secretary-General.

INTERNATIONAL CONGRESS FOR HISTORY OF SCIENCE, Jerusalem, Israel, August 3-7, 1953. Prof. F. S. Bodenheimer, Hebrew University, Jerusalem, Israel, President.

INTERNATIONAL CONGRESS ON MEDICAL LIBRARIANSHIP, London, England, July 20-25, 1953. Mr. W. R. LeFanu, % London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C.1, England, Chairman.

INTERNATIONAL CONGRESS OF MICROBIOLOGY, Rome, Italy, Sept. 6-12, 1953. For information write: Dr. V. Puntoni, Citta Universitaria, Rome, Italy.

INTERNATIONAL CONGRESS OF MILITARY MEDICINE AND PHARMACY, Montevideo, Uruguay, March 1-7, 1953. Dirreccion General del Servico de Sanitad Militar, 8 de Octubre y Mariano Moreno, Montevideo, Uruguay, Secretariat of the Congress.

INTERNATIONAL CONGRESS OF OTORHINOLARYNGOLOGY, Amsterdam, Netherlands, June 8-15, 1953. Dr. W. H. Struben, J. J. Viottasstraat 1, Amsterdam, Netherlands, Secretary.

INTERNATIONAL CONGRESS OF PAEDIATRICS, Havana, Cuba, Oct. 12-17, 1953. Prof. Felix Hurtado, 5a Avenue 124, Miramar, Havana, Cuba, President.

INTERNATIONAL CONGRESS OF RADIO-BIOLOGY, Copenhagen, Denmark, July 14-25, 1953. Prof. Flemming Norgaard, Oster Voldgade 10, Copenhagen K, Denmark, Secretary General.

INTERNATIONAL CONGRESS OF RADIOLOGY, Copenhagen, Denmark, July 19-25, 1953. Professor Flemming Norgaard, 10 Oster Voldgade, Copenhagen K., Denmark, Secretary General.

INTERNATIONAL CONGRESS OF THALASSOTHERAPY, Dubrovnick, Yugoslavia, May 17-25, 1953. Prof. C. Plavaic, Mavrodne Republick 51, Belgrade, Yugoslavia, Secretary General.

INTERNATIONAL CONGRESSES OF TROPICAL MEDICINE AND MALARIA, Istanbul, Turkey, Aug. 28-Sept. 4, 1953. Professor Dr. Ihsan Sükrü Aksel, Tunel Meydam, Beyoglu, Istanbul, Turkey, General Secretary.

INTERNATIONAL FERTILITY ASSOCIATION, New York, N. Y., U. S. A., May 25-31, 1953. Dr. Abner I. Weisman, 1160 Fifth Avenue, New York 29, N. Y., U. S. A., Associate Secretary General.

INTERNATIONAL HOSPITAL CONGRESS, London, England, May 25-30, 1953. Capt. J. E. Stone, 10 Old Jewry, London, EC2, England, Hon. Secretary.

INTERNATIONAL LEPROSY CONGRESS, Madrid, Spain, Oct. 3-10, 1953. Dr. Felix Contreras, Moreto 15, Madrid, Spain, Secretary.

INTERNATIONAL PHYSIOLOGICAL CONGRESS, Montreal, Canada, Aug. 31-Sept. 4, 1953. Dr. A. S. V. Burgen, Dept. of Physiology, McGill University, Montreal, Canada, Secretary.

INTERNATIONAL STUDY CONFERENCE ON CHILD WELFARE, Bombay, India, Dec. 5-12. For information write: All India Save the Children Committee, 5 Carmichael Road, Bombay, India.

INTERNATIONAL UNION AGAINST CANCER AND INTERNATIONAL CANCER RESEARCH COMMISSION, Joint Meeting, Bombay, India. Dec. 28. Prof. Khanolkar, Tata Memorial Hospital, Bombay, India, President.

INTERNATIONAL VETERINARY CONGRESS, Stockholm, Sweden, Aug. 9-15, 1953. Prof. Axel Isaksson, Institute of Veterinary Medicine, Stockholm 50, Sweden, Secretary.

PAN AMERICAN CONGRESS OF THE MEDICAL PRESS, Buenos Aires, Argentine, July 12-16, 1953. Secretaria del Congress, 763 Uriburu, Buenos Aires, Argentine.

PAN AMERICAN MEDICAL ASSOCIATION, International Medical Cruise Congress, S. S. Nieuw Amsterdam, Jan. 7-19. Executive Offices, 745 Fifth Ave., New York 22, N. Y.

WORLD CONFERENCE ON MEDICAL EDUCATION, British Medical Association House, Tavistock Square, W.C.1, London, England, Aug. 24-29, 1953. Secretariat: World Medical Association, 2 East 103d St., New York 29, N. Y., U. S. A.

WORLD CONGRESS OF THE WORLD CONFEDERATION FOR PHYSICAL THERAPY, London, England, Sept. 7-12, 1953. Miss M. J. Neilson, Chartered Society of Physiotherapy, Tavistock House, South, Tavistock Square, London, W.C.1, England, Secretary.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* All centers where there are five or more candidates. Feb. 9-11, April 20-21 (Part II only), June 22-24 and Sept. 8-10 (Part 1 only). Candidates may file applications at any time, but the National Board must receive them at least six weeks before the date of the examination they wish to take. Final date for filing application for the February examination is December 29. Exec. Sec., Dr. John P. Hubbard, 133 South 36th St., Philadelphia 4.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written.* Various locations, July 17. Final date for filing applications is January 17. Sec., Dr. C. B Hickcox, 80 Seymour St., Hartford 15.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, May or June 1953. Final date for filing application for the oral examination is Jan. 15, 1953. Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, Kingshighway and Euclid Ave., St. Louis.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written.* Various Centers, Feb. 6, 1953. Final date for filing applications is Nov. 1. *Oral and Pathological, Part II.* Chicago, May 17-24, Final date for filing application is Feb. 1. Sec., Dr. R. L. Faulkner, 2105 Adelbert Road, Cleveland 6.

AMERICAN BOARD OF OPHTHALMOLOGY: *Written.* Various Centers, January 1953. Final date for filing applications was July 1. *Practical.* New York City, June 6-10, 1953. Sec., Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Part II.* Chicago, Jan. 21-23, Sec., Dr. Harold A. Sofield, 122 South Michigan Ave., Chicago 3.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral.* New Orleans, April 21-25, 1953. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PEDIATRICS: *Written.* Examinations under local monitors will be held on Jan. 16. This is the only written examination which will be given during 1953. *Oral.* Baltimore, Feb. 20-22; Memphis, March 27-29; Philadelphia, May 1-3; Detroit or Ann Arbor, June; Place undecided, Oct. 9-11 (tentative); Indianapolis, November. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION. *Oral and Written.* May 30-31. Final date for filing applications is March 15. Sec., Dr. Robert L. Bennett, 30 N. Michigan Blvd., Chicago.

AMERICAN BOARD OF PLASTIC SURGERY: Final date for receipt of case reports for the spring examination (May-June) is January 1 of each year. Final date for receipt of case reports for the fall examination (October-November) is June 1 of each year.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York City, Dec. 15-16. Final date for filing applications was Sept. 15. *Written.* San Francisco, April 30-May 1. Sec.-Treas., Dr. David A. Boyd, Jr., 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY: *Oral.* Dec. 1-7. Final date for filing application was June 1. *Oral.* Tampa, April 8-15. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written.* Various Centers, March 1953. Final date for filing application is Dec. 1. Sec., Dr. John B. Flick, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: *Written.* Various Centers, December. *Oral.* Chicago, Feb. 7-11. Sec., Dr. Harry Culver, 30 Westwood Road, Minneapolis 16, Minn.

BOARD OF THORACIC SURGERY: *Written.* Various Centers, Feb. 27. Final date for filing applications is Jan. 1. Sec., Dr. Wm. M. Tuttle, 1151 Taylor Ave., Detroit 2.

DEATHS

Redish, Milton Harris ✦ New York; born in New York, Nov. 11, 1911; New York University College of Medicine, 1936; clinical instructor, department of medicine, University of New York Medical Center at New York City in Brooklyn; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the American Association for the Advancement of Science, New York Academy of Science, New York Academy of Medicine, and Royal Society of Tropical Medicine; served during World War II; formerly on the staff of Goldwater Memorial Hospital; served on the staffs of various Veterans Administration hospitals; died Aug. 29, aged 40, of a heart attack.

Bell, Jess Vardeman ✦ Kansas City, Mo.; born in Holden, Mo., Dec. 8, 1892; Northwestern University Medical School, Chicago, 1920; assistant professor of medicine at University of Kansas School of Medicine, Kansas City, Kan.; clinical professor of medicine, University of Kansas City School of Dentistry; specialist certified by the American Board of Internal Medicine; past president of the Kansas City Southwest Clinical Society; fellow of the American College of Physicians; chief of medicine, Kansas City General Hospital; on the executive staff of Research and St. Luke's hospitals; medical director of National Fidelity Insurance Company; died Sept. 29, aged 59, of coronary occlusion.

Mills, Clifford ✦ Morristown, N. J.; Long Island College Hospital, Brooklyn, 1897; formerly instructor in anatomy at his alma mater; served during World War I; operated his own private hospital from 1919-1942; past president of the Morris County Medical Society and the New Jersey State Horticultural Society; mayor for one term; received first prize and Gold Medal at the New York World Fair in 1939 for the cultural excellence of his dahlias; affiliated with Morristown Memorial Hospital and All Souls Hospital, where he died Oct. 15, aged 76, of chronic myocardial disease and uremia.

Alexander, Claude Edwin, Pollok, Texas; Kentucky School of Medicine, Louisville, 1907; died in Memorial Hospital, Lufkin, Sept. 12, aged 69, of carcinoma of the stomach.

Anderson, John Bradley ✦ Valley Falls, Kan.; Eclectic Medical University, Kansas City, Mo., 1914; served on the staff of St. Francis Hospital in Topeka; died in Topeka Sept. 12, aged 75, of cardiorenal disease.

Armstrong, Herman Lee ✦ Somerville, Tenn.; University of Tennessee College of Medicine, Memphis, 1917; fellow of the American Academy of General Practice; vice-president of the West Tennessee Medical and Surgical Society of which he had been president; co-founder of the Armstrong Clinic, where he died Oct. 4, aged 64, of peripheral vascular collapse and arteriosclerosis.

Baker, William Hayden ✦ Quincy, Ill.; Columbia University College of Physicians and Surgeons, New York, 1896; past president of the health board of the city health district; for many years affiliated with St. Mary's Hospital, where he died Sept. 25, aged 82, of carcinoma of the prostate.

Ball, Ernest, Sulphur, Okla.; Dallas (Texas) Medical College, 1904; served during World War I; died Sept. 20, aged 71, of cancer.

Bell, Francis Eulon ✦ Ludlow, Ky.; University of Louisville School of Medicine, 1925; member of the American Society of Anesthesiologists; affiliated with St. Elizabeth Hospital and William Booth Memorial Hospital, Covington, where he died Aug. 27, aged 53, of cerebral hemorrhage.

Bethune, Charles William ✦ Buffalo; University of Buffalo School of Medicine, 1905; member of the American Urological Association; examining physician for child labor, Erie County Health Department; served during World War I; for many years on the staff of Sisters of Charity Hospital; died Oct. 2, aged 69, of coronary thrombosis.

Bowen, James Dinwiddie ✦ Topeka, Kan.; Cornell University Medical College, New York, 1931; certified by the National Board of Medical Examiners; fellow of the American College of Surgeons; served during World War II; affiliated with St. Francis and Stormont-Vail hospitals; director of the State Savings Bank; died in the Veterans Administration Hospital Oct. 3, aged 47, of renal insufficiency and hypertensive cardiovascular disease.

Bowman, Frank Favill ✦ Waunakee, Wis.; Rush Medical College, Chicago, 1897; veteran of the Spanish-American War and World War I; for many years health officer of Madison, and epidemiologist for the state board of health; formerly deputy state health officer; died in the Madison General Hospital Sept. 27, aged 80, of bronchopneumonia and fracture of the neck of the right femur owing to a fall.

Bresee, Charles J., Great Falls, Mont.; Hahnemann Medical College and Hospital, Chicago, 1908; past president of the Cascade County Medical Association; served as a member of the state board of health and as examining physician for the Selective Service board; formerly member of the school board; died Sept. 27, aged 66.

Brooks, Alan Goodwin ✦ Robinson, Ill.; University of Maryland School of Medicine, Baltimore, 1906; served overseas during World War I; died in Edward Greer Hospital Sept. 25, aged 67.

Brooks, Omer Victor, Moorefield, W. Va.; Maryland Medical College, Baltimore, 1910; served during World War I; died Sept. 23, aged 68.

Buckenham, J. E. Burnett, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1910; at one time superintendent of the Philadelphia Hospital for Contagious Diseases; died Aug. 13, aged 76, apparently of a heart attack.

Buckmaster, Raleigh Ankrey ✦ Dunkerton, Iowa; Northwestern University Medical School, Chicago, 1903; veteran of the Spanish-American War; affiliated with Allen Memorial and St. Francis hospitals in Waterloo; died in Waterloo Sept. 21, aged 75, of coronary occlusion.

Caldwell, David Knox, St. Paul; Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1903; on the staff of Midway Hospital; died Aug. 12, aged 74, of cancer.

Canby, Charles B. ✦ Van Nuys, Calif.; College of Physicians and Surgeons, Baltimore, 1897; affiliated with Valley Hospital; died Sept. 25, aged 78, of coronary thrombosis.

Chesler, Maurice ✦ Salem, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1917; served during World War I; died in Atlantic City Sept. 7, aged 59.

Clark, George Townsend, Bradenton, Fla.; North Carolina Medical College, Charlotte, 1906; died July 17, aged 73, of coronary disease.

Cleave, David Crise ✦ Monterey, Calif.; University of California Medical School, San Francisco, 1931; served during World War II; affiliated with Monterey Hospital; died in University of California Hospital, San Francisco, Sept. 27, aged 47, of coronary infarction.

Coady, John Jay ✦ Joliet, Ill.; Chicago College of Medicine and Surgery, 1907; for many years mayor of Minooka; affiliated with St. Joseph Hospital and Silver Cross Hospital, where he died Oct. 9, aged 78, of metastatic carcinoma of the lung.

Cochran, William W., Brilliant, Ala.; Chattanooga (Tenn.) Medical College, 1905; died July 4, aged 80, of cerebral hemorrhage and hypertension.

✦ Indicates Member of the American Medical Association

Cohn, Harold Samuel, Coral Gables, Fla.; University of Wooster Medical Department, Cleveland, 1912; served during World War II; formerly affiliated with Veterans Administration Hospital in Alexandria, La.; died July 28, aged 63, of cerebral hemorrhage and hypertension.

Cook, Emmett Francis ✠ Milwaukee; Marquette University School of Medicine, Milwaukee, 1925; formerly on the faculty of his alma mater; past president of the city board of school directors; affiliated with St. Michaels Hospital, Deaconess Hospital, and St. Anthony's Hospital, where he died Sept. 19, aged 53, of chronic nephritis and hypertension.

Craig, Robert Russell, Reno, Nevada; University of Minnesota Medical School, Minneapolis, 1911; past president of the Nevada State Medical Association; member of the House of Delegates of the American Medical Association in 1916; affiliated with St. Mary's Hospital and Washoe Medical Center; died Sept. 18, aged 70, of coronary disease.

Davis, David Moore ✠ Elizabethtown, Pa.; Ohio Medical University, Columbus, 1901; died Sept. 8, aged 77, of pernicious anemia.

Davis, Stanley Spencer ✠ Oakland, Calif.; Stanford University School of Medicine, San Francisco, 1932; served during World War II; died in Peralta Hospital Sept. 13, aged 45, of myocardial infarction.

Denton, William Lemmon ✠ Bridgeport, Calif.; Northwestern University Medical School, Chicago, 1914; served as county health officer; died in St. Luke's Hospital, Pasadena, Sept. 26, aged 65, of myocardial infarction.

Ehrhardt, Charles Fredegick, Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1906; for many years affiliated with Midwood Hospital; died Sept. 27, aged 68.

Estill, Robert Julian, Versailles, Ky.; Columbia University College of Physicians and Surgeons, New York, 1902; past president of the Kentucky State Medical Association; served overseas during World War I; affiliated with the Good Samaritan Hospital and St. Joseph Hospital in Lexington, where he died Oct. 10, aged 74, of multiple myeloma.

Falkener, William White ✠ Newport News, Va.; University of Pennsylvania School of Medicine, Philadelphia, 1915; specialist certified by the American Board of Pediatrics; member of the American Academy of Pediatrics; fellow of the American College of Physicians; affiliated with Dixon Hospital in Hampton, Elizabeth Buxton Hospital, and Riverside Hospital, where he died Sept. 8, aged 60.

George, Philip Rogers, Monroe, N. Y.; Eclectic Medical College of the City of New York, 1897; died Sept. 5, aged 80.

Haggerty, Daniel Roger ✠ Hornell, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1919; past president of the Steuben County Medical Society; formerly practiced in Arkport, where he was a health officer, a member, and past president of the school district board; affiliated with Bethesda Hospital and St. James Mercy Hospital, where he died Sept. 11, aged 55, of coronary occlusion.

Hair, William Benjamin ✠ Summerville, Ga.; Emory University School of Medicine, Atlanta, 1922; died Sept. 5, aged 60, of carcinoma of the bladder and liver.

Halleck, Paul Parker, Warmsprings, Mont.; St. Louis University School of Medicine, 1920; at one time county physician and county health officer for Powder River County; affiliated with Montana State Hospital; died in Butte Sept. 14, aged 69, of a cerebral accident.

Halloran, Edward Joseph ✠ Worcester, Mass.; Jefferson Medical College of Philadelphia, 1921; served during World War I; member of the New England Heart Association and the American Heart Association; formerly affiliated with Veterans Administration in Boston and the Veterans Administration Hospital in Northampton; for many years cardiologist at Memorial Hospital; died Sept. 8, aged 59, of chronic myocardial degeneration.

Heck, Edson Burr ✠ New York; Columbia University College of Physicians and Surgeons, New York, 1919; specialist certified by the American Board of Internal Medicine; during World War II medical examiner for Selective Service; affiliated with Margaret Hague Maternity Hospital in Jersey City, Booth Memorial, and Bellevue hospitals; died Sept. 25, aged 61, of coronary occlusion.

Hobbs, Harry Kane, Shenandoah, Pa.; Jefferson Medical College of Philadelphia, 1917; served during World War I; medical examiner for the Metropolitan Life Insurance Company and the Lehigh Valley Coal Company; died in Jefferson Hospital, Philadelphia, Oct. 7, aged 60, of cardiac failure.

Hodam, Joseph Adam ✠ Filley, Neb.; Washington University School of Medicine, St. Louis, 1902; affiliated with Mennonite Deaconess Home and Hospital and Lutheran Hospital, where he died recently, aged 79, of heart disease.

Holsti, Osten Nikolai ✠ Portland, Ore.; Helsingfors Universitet Medicinska Fakulteten, Helsingfors, Finland, 1913; assistant clinical professor of medicine at the University of Oregon Medical School; died in Holladay Park Hospital Oct. 5, aged 65.

Jackson, Arley Martin, Frankfort, Ky.; University of Louisville (Ky.) Medical Department, 1905; affiliated with Kings Daughters Hospital; died in Middletown, Ohio, Oct. 3, aged 73, of congestive heart failure.

Johnston, James Gilliam, Charlotte, N. C.; Vanderbilt University School of Medicine, Nashville, 1899; specialist certified by the American Board of Ophthalmology; member of the American Academy of Opthalmology and Otolaryngology; fellow of the American College of Surgeons; affiliated with Charlotte Memorial, Presbyterian, and Mercy hospitals; died Oct. 6, aged 80, of a skull fracture received in a fall.

Jones, Archie Austin ✠ Long Beach, Calif.; University of Kansas School of Medicine, Kansas City, 1927; served during World Wars I and II; affiliated with Seaside Hospital, St. Mary's Hospital, and the Community Hospital, where he died Sept. 19, aged 54, of coronary thrombosis.

Jones, Claiborne Turner ✠ Petersburg, Va.; Medical College of Virginia, Richmond, 1909; past president of the Petersburg Medical Faculty; affiliated with Petersburg Hospital; died Sept. 11, aged 66, of cerebral thrombosis.

Kan, Niels Anderson, Hamilton, Mont.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; served as health officer of Ravalli County; died in Marcus Daly Memorial Hospital Sept. 2, aged 87, of carcinoma of the kidney.

Kimbrough, Wallace Calvin, Denton, Texas; University of Nashville (Tenn.) Medical Department, 1898; died Sept. 25, aged 76, of cerebrovascular occlusion.

Kingman, William Henry ✠ Bartlesville, Okla.; Medical Department of Grant University, Chattanooga, Tenn., 1907; served on the staff of the Washington County Memorial Hospital; died in Veterans Administration Hospital, Topeka, Kan., Sept. 14, aged 71, of cerebral thrombosis.

Lechner, LeRoy Yohn, Bechtelsville, Pa.; Jefferson Medical College of Philadelphia, 1895; died Sept. 18, aged 81, of acute dilatation of the heart.

Lemery, Benjamin David ✠ Grand Rapids, Mich.; Northwestern University Medical School, Chicago, 1904; member of the Illinois State Medical Society; died Sept. 19, aged 77, of carcinoma of the stomach with metastasis.

Lemon, Frank J., Yakima, Wash.; Barnes Medical College, St. Louis, 1898; served during World War I; county coroner; died in St. Elizabeth Hospital Sept. 10, aged 76, of cerebral thrombosis.

Light, Frank Phenecie ✠ Brooklyn; University of Minnesota Medical School, Minneapolis, 1929; clinical professor of obstetrics and gynecology at Long Island College Hospital; specialist certified by the American Board of Obstetrics and Gynecology; fellow of the American College of Surgeons; affiliated with Kings County Hospital; died Sept. 18, aged 47, of coronary thrombosis.

Little, Bessie Belle ✠ Manhattan, Kan.; Woman's Medical College of Pennsylvania, Philadelphia, 1906; died Sept. 24, aged 81, of bronchopneumonia and arteriosclerotic heart disease.

Lundquist, Elmer Ferdinand ✱ Minneapolis; University of Minnesota Medical School, Minneapolis, 1918; died in Swedish Hospital Oct. 19, aged 59, of cirrhosis of the liver, coronary sclerosis, and carcinoma of the colon.

Mabry, James Delma ✱ Houston, Texas; University of Texas School of Medicine, Galveston, 1928; associate professor of clinical surgery at Baylor University College of Medicine; member of the American Academy of General Practice; fellow of the American College of Surgeons; served during World War II; on the staff of the Hermann Hospital; died Sept. 10, aged 50, of coronary occlusion.

McCarthy, Lawrence Joseph ✱ Chelsea, Mass.; Tufts College Medical School, Boston, 1928; member of the National Gastroenterological Association; past president of the Suffolk County Medical Society; fellow of the American College of Surgeons; served during World War II; formerly on the faculty of his alma mater; affiliated with Boston City Hospital and Chelsea Memorial Hospital; consultant in surgery, Captain John Adams Hospital; died Sept. 18, aged 50, of coronary occlusion.

McMurry, James Finley ✱ Sentinel, Okla.; Vanderbilt University School of Medicine, Nashville, Tenn., 1929; member of the school board; past president and secretary of the Kiowa-Washita Counties Medical Society; formerly member of the state board of medical examiners; co-founder and medical director of the McMurray-Stowers Hospital, where he died Aug. 11, aged 49, of leukemia.

Marker, Emlyn Richard ✱ Toledo, Ohio; Ohio State University College of Medicine, Columbus, 1923; an associate of the International College of Surgeons; affiliated with St. Luke's, Mercy, and Toledo hospitals; died Oct. 4, aged 52, of coronary occlusion.

Marsden, Thomas Blaine ✱ Detroit; Detroit College of Medicine, 1915; served during World War I, and was awarded the British Military Cross for outstanding work while attached to the British Army; died Oct. 11, aged 59.

Mathews, John Reid, Grants Pass, Ore.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1897; justice of the peace; formerly health officer of Riley County, Kansas; died Sept. 20, aged 79, of coronary thrombosis.

Meding, Charles Bramman ✱ New York; College of Physicians and Surgeons, medical department of Columbia College, New York, 1887; specialist certified by the American Board of Ophthalmology; fellow of the American College of Surgeons; since 1897 executive surgeon and a director of the Harlem Eye and Ear Hospital, of which he had been a trustee and secretary of the board since 1887; consultant at St. Barnabas Hospital; died Oct. 15, aged 86, of cancer.

Meilicke, William Alexander, Balsam Lake, Wis.; University of Colorado School of Medicine, Denver, 1903; died in West Bend Sept. 4, aged 74, of cerebral hemorrhage and arteriosclerosis.

Mercer, Edward H., Bowling Green, Ohio; Eclectic Medical Institute, Cincinnati, 1901; past president, vice-president, and secretary of the Wood County Medical Society; died Sept. 2, aged 77, of coronary heart disease.

Messinger, Milton Phipps ✱ Oakfield, N. Y.; University of Buffalo School of Medicine, 1894; an Associate Fellow of the American Medical Association; died in Genesee Memorial Hospital, Batavia, Sept. 25, aged 85, of cellulitis of the left leg and arteriosclerotic heart disease.

Miller, Howard U. ✱ Mount Penn, Pa.; Medico-Chirurgical College of Philadelphia, 1906; past president of the Berks County Medical Society; specialist certified by the American Board of Internal Medicine; served on the staff of the Reading (Pa.) Hospital, where he died Sept. 28, aged 72, of cerebrovascular accident and cardiorenal disease.

Mounts, Leonard, Morrow, Ohio; Medical College of Ohio, Cincinnati, 1891; died Sept. 10, aged 84, of cerebral hemorrhage.

Murphy, David Law ✱ Dixon, Ill.; Northwestern University Medical School, Chicago, 1930; fellow of the American College of Surgeons; once served as a member of the board of education; president of the Lee County Tuberculosis Association and North Central Illinois Medical Society; on the staff of the Dixon Public Hospital; died Sept. 30, aged 50, of coronary occlusion.

Murphy, Mary-Jean, St. Louis; University of Texas School of Medicine, Galveston, 1949; resident at St. Louis State Hospital; instantly killed Oct. 11, aged 33, when the automobile in which she was riding overturned.

Nady, Andrew ✱ Fort Bayard, N. Mex.; Universitatea Regele Ferdinand I-iu din Cluj Facultatea de Medicină si Farmacie, Rumania, 1922; member of the American Trudeau Society and the Illinois State Medical Society; affiliated with Veterans Administration Hospital; served on the staffs of the Veterans Administration hospitals in Tucson, Ariz., and Livermore, Calif.; died in Denver Sept. 5, aged 57, of myocardial infarction and arteriosclerosis.

Noble, Kenneth, Milan, Mich.; Detroit College of Medicine, 1904; died Sept. 14, aged 69, of carcinoma of the face.

Nowak, Joseph Francis, Fall River, Mass.; College of Physicians and Surgeons, Boston, 1933; for many years city physician; died in Truesdale Hospital Sept. 23, aged 47, of a heart attack.

O'Brien, Helen Druhan ✱ Mount Vernon, N. Y.; University and Bellevue Hospital Medical College, New York, 1923; in 1923 deputy commissioner of health; died in Mount Vernon Hospital Oct. 4, aged 53, of carcinoma of the lung and spine.

Oesterlin, Ernst Julius ✱ Mount Pleasant, Iowa; Medizinische Fakultät der Universität, Vienna, Austria, 1910; specialist certified by the American Board of Pathology; member of the American Society of Clinical Pathologists; veteran of World Wars I and II; formerly pathologist and director of laboratories, Atlantic City (N. J.) Hospital, and senior pathologist, Rockland State Hospital in Orangeburg, N. Y.; affiliated with State Hospital; died recently, aged 67, of accidental drowning.

Perry, Edward Louis ✱ Middleboro, Mass.; Boston University School of Medicine, 1922; specialist certified by the American Board of Ophthalmology; fellow of the American College of Surgeons; for many years on the faculty of his alma mater; formerly affiliated with Massachusetts Memorial Hospital in Boston; school physician for Middleboro and Lakeville; on the staff of St. Luke's Hospital; died Sept. 23, aged 55.

Pine, John Swhiers ✱ Oklahoma City, Okla.; University College of Medicine, Richmond, 1901; died recently, aged 76, of myocardial failure.

Poe, James Fletcher, Tiffin, Ohio; University of Arkansas School of Medicine, Little Rock, 1914; served during World War I; formerly on the staff of the State Hospital in Little Rock; affiliated with Tiffin State Hospital; died Sept. 22, aged 63, of acute myocardial failure.

Pratt, Frank Allen ✱ Kalamazoo, Mich.; Detroit College of Medicine, 1906; affiliated with Bronson and Borgess hospitals; died Sept. 29, aged 80.

Priest, Perry Davis ✱ Texarkana, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1931; served during World War II; affiliated with Texarkana and St. Michael's hospitals; at one time medical superintendent of the Tennessee Home and Training School for Feebleminded Persons at Donelson; died Sept. 22, aged 50, of encephalitis.

Rambo, Joseph Seymour, Richwood, Ohio; Ohio Medical University, Columbus, 1905; died Aug. 26, aged 84, of uremia.

Randall, Ray Nathan ✱ Lewiston, Maine; Boston University School of Medicine, 1906; formerly city physician and school physician; affiliated with Central Maine General Hospital; died Aug. 11, aged 75, of coronary thrombosis.

Raymond, Lewis Herbert, Clarks Summit, Pa.; Medico-Chirurgical College of Philadelphia, 1899; for many years served as a member of the board of health; died in West Side Hospital, Scranton, Sept. 26, aged 81, of acute myocardial failure.

Reed, James Washington, Norfolk, Va.; Medical College of Virginia, Richmond, 1912; formerly mayor; served three terms on the city council; at one time Norfolk county health officer; for many years surgeon for the Virginia Electric and Power Company; on the staffs of the St. Vincent's and De Paul hospitals; consulting physician for the Norfolk Community and Tidewater Memorial hospitals; surgeon to the Louisville and Nashville Railway; died in De Paul Hospital Sept. 23, aged 64.

GOVERNMENT SERVICES

ARMY

Course in Clinical Pathology.—A three day course in advances in clinical pathology will be given the week of Dec. 8 at the Walter Reed Army Medical Center, Washington, D. C. The course is designed to familiarize some 50 Army physicians and allied scientists with current problems in the laboratory field. The course schedule shows emphasis on blood banking, special hematology, and antibiotics. More than 30 leaders in the various fields will serve as instructors.

Dr. John Tripp, chief, blood and blood products section, National Institutes of Health, will moderate for a symposium on blood and blood banking. Dr. William Dameshek, director, Blood Research Laboratory at Boston's New England Center Hospital, will explain recent studies of hemolytic anemia. Dr. Philip Levine of the Ortho Research Foundation in Raritan, N. J., will describe new techniques in typing and cross matching blood and the newly discovered blood groups. Col. Patrick Hoey, chairman, blood and blood derivatives group, Armed Services Medical Procurement Agency, will discuss problems in blood supply. Dr. Gilbert Otto, associate professor of parasitology, Johns Hopkins' School of Hygiene and Public Health, will speak on amebiasis and other parasitic infections. Dr. R. Philip Custer, Philadelphia, will discuss relationships of malignant lymphomata, and Dr. John Rheinhold, professor of biochemistry, University of Pennsylvania's Pepper Laboratory of Clinical Medicine, advances in liver function tests. Col. Hugh R. Gilmore, chief of pathology and allied sciences division, Office of the Army Surgeon General, will report on progress in Army medical laboratories. Demonstrations in parasitology, bacteriology, hematology, and slide study will be presented.

Symposium on Leptospirosis.—Some 300 civilian and military scientists are planning to attend a two day symposium on leptospirosis, sponsored by the Army Medical Service Graduate School, Washington, D. C., Dec. 11-12. Indications of wide prevalence of leptospiral infections have focused attention on these diseases. The Army Medical Service Graduate School's veterinary division has developed a new and comparatively simple complement-fixation test, antigens for which are being distributed to Army medical installations around the world. The new test can be performed in any laboratory doing standard complement-fixation tests. No one knows just what the picture will show, but it seems that leptospiral infections will find a place high on the list of public health problems.

A survey of human leptospirosis will be presented by Dr. Joseph Smadel, director, Army Medical Service Graduate School's communicable diseases division, Walter Reed Hospital, Washington, D. C.; Dr. Theodore Woodward, associate professor of medicine, University of Maryland School of Medicine; and Dr. Carl Larson, director, U. S. Public Health Service's Rocky Mountain Laboratory at Hamilton, Mont. Bovine leptospirosis will be discussed by Karl Reinhard, D.V.M., of the Rocky Mountain Laboratory. From abroad those participating include Drs. J. C. Broom, O.B.E., of London; Otto Gsell, of St. Gallen, Switzerland; and J. W. Wolff, of Amsterdam. Lt. Col. Robert Yager, director of the Army Medical Service Graduate School's veterinary division, will present a summary on leptospirosis in the United States.

Awards and Commendations.—The Silver Star was recently awarded to 1st Lieut. Raymond N. MacAndrew (MC) of Providence, R. I. The citation reads in part as follows: "First Lieutenant Raymond N. MacAndrew, a member of Medical Company, 9th Infantry Regiment, 2d Infantry Division, distinguished himself by gallantry in action on August 14, 1952 in the vicinity of Chorwon, Korea. On that date, a party of wounded men returning to the aid station reported by radio that they had lost their way. Lieutenant MacAndrew organized a search party, and carrying a large quantity of medical supplies, went out to look for the wounded men. Upon finding the wounded men, Lieutenant MacAndrew, despite an intense enemy mortar and small arms barrage, administered emergency treatment, and was responsible for saving many lives. The gallantry in action displayed by Lieutenant MacAndrew reflects great credit upon himself and the military service."

PUBLIC HEALTH SERVICE

Courses in Radiological Health Protection.—A series of three two-week courses in radiological health protection, including technical laboratory procedures, will be presented in Cincinnati, beginning Jan. 19, 1953. Each succeeding two-week course is dependent on information gained in the preceding weeks; however, the student's previous training and experience may permit him to enter directly the second or third two-week program. Thus, a person, depending on his particular qualifications and need, may take a two-week, a four-week, or a six-week course. This program, free of tuition, is offered to qualified applicants by the Public Health Service at its Environmental Health Center. Its purpose is to assist health department employees and key personnel in other governmental or private organizations to achieve a working knowledge of the hazards and problems related to use of x-rays, radioelements, neutron fluxes, and particle accelerators. For information write Chief, Radiological Health Training Section, Environmental Health Center, 1014 Broadway, Cincinnati 2, Ohio.

ATOMIC ENERGY COMMISSION

Reactor-Produced Polonium Available for Purchase.—Reactor-produced radioactive polonium-210 may now be purchased at Oak Ridge, Tenn., for research activities, the Atomic Energy Commission has announced. Polonium is the first reactor-produced radioisotope to be sold that emits alpha particles. It can be used also as a source of high energy neutrons. The Isotopes Division, a part of the AEC's Oak Ridge Operations, said the newly available polonium is needed by research groups for physical and biological investigations. Polonium can be bought at Oak Ridge National Laboratory in two forms. When it is to be used as a neutron source, the polonium will be mixed with beryllium and enclosed in a cylinder of nickel, about ¾ in. in diameter. As an alpha source, the polonium will be plated on a strip of platinum. Polonium-210 that is produced in a reactor by neutron bombardment of bismuth is of higher purity than polonium derived from the radioactive decay of radium.

DEPARTMENT OF AGRICULTURE

Notice to Laboratories and Others Studying Animal Diseases.—Instances of illegal movement of animal disease organisms and vectors in interstate commerce have come to the attention of the U. S. Department of Agriculture. Because of the inherent danger of such movements, all laboratories, research institutions, and others dealing with animal disease organisms and vectors are requested to comply with Bureau of Animal Industry Order 381, part 122, entitled "Rules and Regulations Relating to Viruses, Serums, Toxins, and Analogous Products, and to Certain Organisms and Vectors." Movements are allowed under permit only when such shipments serve the public interest and after ample safeguards are provided to protect against the further dissemination of such agents. Information and applications for permits may be obtained by writing to the Chief, Bureau of Animal Industry, U. S. Department of Agriculture, Washington 25, D. C.

FOREIGN LETTERS

BRAZIL

Basal Metabolism in the Tropics.—A comparative study of basal metabolism in the tropics was made by Dr. Carlos Alberto Salvatore of the Hospital das Clinicas in the Faculdade de Medicina of São Paulo. The basal metabolism of 150 women, between 13 and 58 years old, in São Paulo, was determined by two processes: (*a*) in relation to body surface and weight (Boothby-Sandiford standard) and (*b*) in relation to the weight of the patient (Galvão, on tropical standard).

Dr. Salvatore came to the following conclusions: 1. The difference between the basal metabolism rates as calculated by these two methods was found to be from 10 to 30% in 32% of the cases. 2. The difference in this percentage is sufficient to change the therapeutic management. 3. In the cases of fat women, whose basal metabolism calculated by the Boothby-Sandiford standard was found to be high, when calculated by the Galvão standard, in the majority of cases, was usually normal. Consequently, in warm climates, the basal metabolism expressed by body surface may cause a disagreement between the results of basal metabolism and the clinical symptoms in some cases. In warm climates it is necessary to compute the basal metabolism in relation to the weight of the body, because according to Galvão's researches the surface law is not applicable in the tropics.

Snake Venom Allergy.—Dr. Ernesto Mendes of São Paulo reported a case of a 29-year-old woman who had asthma, conjunctivitis, and allergic rhinitis caused by exposure and inhalation of snake venom. The patient worked for nine years in a laboratory for the manufacture of the blood clotting factors derived from snake venoms and thus was in contact with and inhaled snake venom powder. The allergic symptoms started after two years of exposure to the venoms. Cutaneous tests gave strongly positive reactions to Bothrops and Crotalus venoms. Prausnitz-Küstner local passive sensitization tests gave positive results with both venoms. All allergic manifestations disappeared when the patient left her job.

ISRAEL

World Congress of Jewish Physicians in Jerusalem.—The Second World Congress of Jewish Physicians, attended by more than 270 physicians from 18 countries, was opened in Jerusalem on Aug. 11, 1952. The congress was officially inaugurated by the prime minister, Mr. David Ben Gurion, who discussed the role of Jewish men of science throughout the ages and appealed to the physicians present to continue this tradition and to make the Jewish State a center of this task. A brief survey of progress in Israel's medical services was given by the minister of health, Dr. Y. Burg. He noted that government hospitals had grown in four years from a 500 bed capacity to one of 4,000, but that even this by no means satisfied the demand. Dr. M. J. Robbins led the American delegation and sent greetings from the American Physicians Fellowship, which was strongly represented at the congress. The French delegation, which accounts for 60 physicians, was represented by Prof. H. Baruk of Paris, and the assembly ended with a lecture by Dr. Z. Avigdori, chairman of the Israel Medical Association's central committee on the problems of a physician in Israel.

Some of the delegates reported on Jewish physicians in the Diaspora. A representative of each delegation outlined local problems facing Jewish members of the profession in America, England, Turkey, France, South Africa, and Holland.

The first subject in Israel's future Public Health Act was symbolically presented by Prof. J. Penn, of South Africa. Dr. S. Nelson, chief health officer of the Transvaal, and Mr. S. Frank, a South African advocate, are at present drafting the new Public Health Act after having inspected conditions in this country at the invitation of the government. Professor Penn, who headed the South African team of surgeons during the War of Liberation, and has on this visit already seen 300 patients from Hadassah and the Army, told the congress of the growing liaison between medical men in Israel and those in the Union of South Africa. Through the medical department of the South African Zionist Federation, physicians were being sent for 18 months' service to Israel hospitals, and a constant flow of specialists and medical supplies had been kept up. Of the 18 South African physicians at the congress, 3 were on missions for the Israel Ministry of Health.

Dr. M. Dvorjetski, a survivor of Ghetto Warsaw, spoke on Jewish ghetto physicians and the experiments conducted by German scientists to further mass genocide. Dr. A. Atzmon, surgeon general of the army, introduced a series of papers by Israel specialists on their medical experiences during the War of Liberation. Dr. H. Sheba, director-general of the Health Ministry, gave an over-all picture of medicine in a state beset with unique difficulties, and the directors of medical foundations detailed their specific activities. Immigrant health, lack of hospital beds and staff, and plans for the Hadassah Medical Center were among subjects designed to inform the physician from abroad of Israel's need for physicians. The history of medicine was reviewed by Dr. Sussman Muntner who lectured on Yitzhak Israeli, the renowned physician born in Fayum, Egypt, in 850 A. D.

Prof. H. Baruk, head physician of the Paris National Health Center, lectured on and demonstrated a film of his experiments in mental disease; he foresaw that treatment of such disorders would, in the future, be based on a knowledge of brain structure. A paper read on behalf of Professor Rogoff of Cleveland aroused much interest. He warned Israel physicians against using commercial preparations reputed to be adrenocortical hormones; they were often toxic and could be fatal. Hormones were also discussed by Prof. B. Zondek of the Hebrew University, Jerusalem, who refuted the assertion that very large doses of estrogens caused cancer. The origins of cancer, as Prof. J. Berenblum of the Weizmann Institute, Rehovoth, pointed out, were almost all external and subject to control.

The pediatric pioneer in Israel, Dr. Helena Kagan, presided over the four lectures by American child specialists. A controversial thesis was propounded by Dr. L. Taran of Long Island, St. Francis Sanatorium for Cardiac Children. He pointed out that long-term clinical studies of rheumatic "susceptibles" and patients with obvious protracted carditis as well as more detailed pathological studies show that rheumatic fever begins early in life and continues during the patient's entire life cycle. In 8 out of every 10 patients the disease is insidious and unheralded by any acute infections or other obvious traumatic experiences. From these studies it becomes clear that the natural history of rheumatic fever consists of four distinct phases: (1) the phase of preparation or maturation, dominated by a change in behavior pattern, (2) the prerheumatic phase, rheumatic symptoms without clear-cut diagnostic signs, (3) classical manifestations phase, dominated by exudative and "allergic" phenomena, and (4) carditic phase, protracted clinical or subclinical carditis of years duration. In the light of our present day knowledge the course of rheumatic fever can be modified only when each phase is managed in its own specific manner. "I have seen 20,000 cases in 20 years," Dr. Taran summarized in his lecture, and from his observations he concluded that rheumatic fever was actually present at birth, the disease was inherited, and chemical treatment was useless.

Dr. B. Kramer, Brooklyn, and Dr. M. Glazier, Boston, spoke on the treatment of tetany and tuberculosis, respectively. In his lecture on recent advances in the treatment of tubercular children, Dr. Glazier mentioned that the recent advance in the treatment of tuberculous children should be considered as dramatic.

The items in these letters are contributed by regular correspondents in the various foreign countries.

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Streptomycin and *p*-aminosalicylic acid therapy results in a 75% survival rate in children with tuberculous meningitis, formerly a deadly disease; however, the high incidence of residual neurological disorders among the survivors is a serious problem. Prevention of these disorders is aided by the early diagnosis of tuberculous meningitis followed by rapid and adequate treatment. In children with active tuberculosis, frequent spinal fluid taps should be done; even slight cell changes in the spinal fluid may mean the beginning of meningitis. Isonicotinic acid hydrazide, a new drug, is relatively nontoxic, orally active, and is not cross resistant to streptomycin and *p*-aminosalicylic acid. Preliminary reports claim that the use of this drug in active tuberculosis controls cough and fever, decreases sputum, makes a patient feel better, and helps create a rapid weight gain; however, no positive statement concerning its therapeutic value is possible from present observations.

Prof. B. Gasul of the Pediatric Cardiology Institute in Chicago reported his experiences in 1,100 cases. He performed 400 angiocardiograms and over 200 catheterizations of the heart and the great vessels. The author also presented the clinical, angiocardiographic, and catheterization findings of what appears to be a new entity—pulmonary stenoses with intraventricular septal defect without dextroposition of the aorta. The meeting concluded with a tour of the visitors to Tel-Aviv and Haifa, where they visited medical institutions.

ITALY

Medical Hygienists Convention.—A convention of medical hygienists from Sicily and Tunisia was held in Trapani, Sicily, under the chairmanship of Professor Alessandrini, from the University of Bologna. Professor Durand spoke of new methods of prophylaxis and treatment of salmonellosis and reported his results of experiments with vaccines treated with a diethyldithiocarbamate. This substance did not alter the antigenic qualities of the bacterial body, not even the V antigen, which usually is not spared by formol (formaldehyde in wood alcohol and water) and other substances used in the preparation of common vaccines. This vaccine is extensively used in Tunisia and has had great efficacy in some salmonellosis epidemics, such as that of 1946.

Durand and his co-workers followed the therapeutic scheme suggested by Smadel, in 1951, in treating 12 patients with typhoid and 1 with paratyphoid with a combination of cortisone and chloramphenicol (chloromycetin®). Cortisone in daily doses of 250 mg. was given for an average of two days; in some particularly severe cases it was given for two additional days. Usually within the first 24 hours the elevated temperature fell and the general condition improved rapidly, especially in the sensory apparatus. All the patients were cured, and there were no relapses. From the bacteriological standpoint the bacillus was found in the feces for as long as 22 days later. The agglutination level was decreased during and after the treatment. Vaccination with paratyphoid (T.A.B.) was performed during the convalescence period. The mechanism of action of cortisone is still an open problem; it is certainly not of antithermic nature, since it did not bring any modification in the experimental thermic curve obtained in animals with various substances used for vaccination.

In the discussion that followed, Professor D'Alessandro said that, despite the introduction of antibiotic therapy, the use of vaccine is still a modern therapy. The discrepant points of view on whether or not to combine the vaccine with chloramphenicol lies in the yet uncertain evaluation of the antibiotic's action on the production of antibodies. The main problem, according to the speaker, is the efficacy of vaccine therapy for immunization against future infections. Professor Vendramini, on the basis of his in vitro and in vivo experiments, rejected the assertions of those who say that antibiotic therapy lowers the production of antibodies. He believes it decreases only when the dose of the antibiotic is insufficient and given only for a short period of time, whereas it increases with massive and prolonged doses. The bacteria treated in vitro with chloramphenicol acquire particular antigenic properties and cause, therefore, the formation of specific antibodies against the bacteria that have been treated with the antibiotic. He suggested extending the common agglutination test by including those for bacteria that have undergone antibiotic therapy. Professor Alessandrini said that an important clue to the problem of combining vaccine and chloramphenicol can be taken from what is observed in brucellosis; in this disease antibiotic treatment is not sufficient for a complete recovery and for prevention against recurrences. He therefore approved of the combination of vaccine and chloramphenicol therapy in salmonellosis.

In replying, Professor Durand pointed out the following points. Vaccine prophylaxis carried out with a single dose would be ideal, but experiments up-to-date have given negative results. The use of a vaccine in an aqueous excipient with lanolin to be injected at 35 C was attempted. But it proved impossible because it caused severe untoward effects. The addition of other substances to a diethyldithiocarbamate caused formation of abscesses, even in conditions of total sterility. The production of specific antibodies against the bacteria after antibiotic therapy can be attributed to the general phenomenon that occurred due to the fact that the albumins were changed with various substances. The interesting problem is to see whether the person who is protected from the bacteria that have undergone antibiotic action is also protected from the natural bacteria. At present vaccine therapy with natural bacteria is advised to immunize the person against future infections.

Professor Gatto read a report on infantile mortality in Sicily and discussed some statistical data. During the war years mortality was greater in the island than in continental Italy; today it is decreasing and is coming to a par with the average mortality rate of the nation. The decrease is attributed mainly to the progress realized in the treatment of diseases of the respiratory and digestive apparatus; other reasons are not responsible for this decrease. Along the shores of Sicily where the population is less crowded and has a higher income, the mortality rate is lower than that among the population of the center of the island where the main occupation is farming. Professor Caruana spoke of infantile mortality in Tunisia. Statistics show a pronounced difference in the rate of mortality between Arabians, Jews, and Europeans. Among the latter the rate is equal to that of the most favorable Mediterranean countries of Europe (55% in the city of Tunis in 1950). The same is true of the stillborn rate. The diseases that most account for the two phenomena are enteritis and syphilis.

Lipofibrous-Calcareous Myopathy.—At a meeting of the Medical Academy of Pistoia Professor Mattioli-Foggia used this term for a disease of which the main clinical aspect is a slow process of lipofibrous-calcareous alteration of the muscles, which can be seen histologically. From the study of 11 patients, it was found that it is a syndrome with clinical, radiological, anatomic, and pathological characteristics involving the central nervous system. The patients always present severe inherited degenerative defects from the somatic as well as neurological and psychic points of view. There are disseminated swollen areas of a hard wood-like and sometimes stone-like consistency, not painful at palpation, while the skin in these areas is of a violet or copper-like color. These swellings occur in the surface of the muscles of the thighs, the arms, or hips, always in a symmetrical way, with onset in the early years of youth and a long and progressive course. The radiograms revealed zones of true calcification in the swollen and hard places. It is believed that this disease has an essentially nervous basis.

Professor Barruffaldi reported on two cases of myopathy and discussed the histological examination of the diseased muscles. This revealed a picture of severe hyaline degeneration of the muscle fibers that often showed also fatty, waxy, and Zenker's degeneration. Extensive foci of degeneration of the muscle fibers were also seen in the muscles far removed from those affected with the disease. Professor Biliardi has found, from the radiological study of patients with lipofibrous-calcareous myopathy, the following characteristic signs: constant symmetry of tissue alterations, disappearance or attenuation of the borderline between the fat tissue and the muscle shadow, and a state of lipofibrous degeneration. The progressive character of the disease is pointed out by follow-up radiograms that were taken 14 to 28 months after the first radiograms.

JAPAN

Epidemics of Tuberculosis in Two Primary Schools.—Epidemics of tuberculosis occurred in the Miyotamura Primary School, Nagano Prefecture, and at the same time in the Shimoigawa Primary School, Akita Prefecture. The outbreaks and the results of one and one-half years' observation of these two epidemics are as follows: In September, 1950, a boy in the class A of the second grade of Miyotamura Primary School died of meningitis, and almost at the same time a girl in the same class died of miliary tuberculosis complicating meningitis. Another boy and a girl had been absent from the class with what was thought to be pulmonary infiltration. Consequently, a tuberculosis examination was performed on all children of this school, with the result that 34 children of this class and 1 of another class (B) of the same grade were found to have tuberculosis. All of these children were immediately put into the emergency hospital for isolation, adequate rest, and treatment. The tuberculin positive rate was 84.4% in class A and only 5.9% in class B. The chest x-ray examination revealed 32 out of 34 diseased children in class A having abnormal findings with primarily infected lesions that were minimal and disseminated in the apex. From the circumstances, neither of the two dead is considered as the source of infection. Their teachers were found healthy. There was a boy, however, who had had tuberculous empyema with a fistula in which a large amount of tubercle bacilli was proved by smear and culture tests. He had also a bronchial fistula and was found positive for tubercle bacilli through the sputum and gastric aspiration tests. So far, this boy is considered the source of infection.

Almost concurrently, a similar incident occurred in the Shimoigawa Primary School, the source of infection of this case being now under careful investigation. Unfortunately, children of these groups had not been given any tuberculosis examination, and if strict health control had been conducted such a tragic accident would have been prevented. Immediately after the outbreak of the epidemics, teams of physicians of the Antituberculosis Association were dispatched to these places in order to clarify the source of infection and give complete care to the children, all of whom have favorable prognoses up to the present.

LONDON

Medical Research Council.—The report of the Medical Research Council, which was recently published, covers the year October, 1950, to September, 1951. In the fiscal year ended March 31, 1951, the total expenditure of public funds by the council was £1,438,277 on ordinary account and £288,443 on nonrecurrent account. The outstanding benefaction was $25,310 from the Rockefeller Foundation of New York. Since 1923 the Rockefeller Foundation has entrusted the council with funds for the awarding of travelling fellowships to British candidates. These fellowships have proved attractive, and a survey of the subsequent careers of the 133 holders of these fellowships between 1923 and 1950 shows that 41 now occupy university chairs, 21 are university readers or lecturers, 23 hold other full-time research or teaching appointments, while 32 hold part-time research or teaching appointments. In the words of the report, "rarely can there have been such a successful scheme for travelling fellowships or can enlightened generosity have reaped such a rich award."

With about 50 research units, in addition to the National Institute for Medical Research in London and scientific staffs in university departments, the council covers practically the whole field of medicine and the ancillary sciences. The council has always attached great importance to the development of the statistical approach to medical research, and the report shows that the statistical research unit, under the direction of Prof. Bradford Hill, had 27 projects on its program during the year, ranging from allergy in dampness to clinical trials of cortisone and corticotropin, streptomycin and *p*-aminosalicylic acid, and chloramphenicol and aureomycin. One of the most important trials carried out by the council was that of vaccines in pertussis. The first trial, carried out on 10,000 children under the age of two years, showed that the proportion attacked by pertussis was five times as high in the unvaccinated group as in the vaccinated children. It also confirmed the existence of considerable differences in potency between the three kinds of vaccines used. A further trial, involving 30,000 children, is now under way to try and find the factors responsible for the differences. In the field of tuberculosis, it was announced that by the end of April this year 35 hospitals were cooperating in a controlled trial of isoniazid, involving 200 patients. For the furtherance of research on climatologic medicine a climatic laboratory has been erected in which air movement, air temperature, wall temperature, and humidity are controlled over a range of −15 C to +75 C, while another has been designed to cover a lower range of temperature: −40 C to +20 C. "When these two laboratories are complete, this country will possess excellent facilities for reproducing the effects of almost every kind of climate." On the subject of cortisone it was stated that "one of the most promising natural compounds for the purpose of cortisone synthesis is a sapogenin called hecogenin, which council workers discovered to be present in sisal waste and in the juice of the sisal plant. "Investigation of this matter by a member of the team in Kenya has shown that hecogenin can be easily and cheaply extracted from the sisal juice, so that material for cortisone synthesis becomes potentially available from this source in a large amount and at low cost."

Corneal Grafting.—This session Parliament passed the Corneal Grafting Act, 1952, which received the royal assent in June and comes into operation on Sept. 26. This act makes it possible to use the eyes of persons after their death for corneal grafting. The procedure that has been laid down is: "if any person, either in writing at any time or orally in the presence of two or more witnesses during his last illness, has expressed a request that his eyes be used for therapeutic purposes after his death, the party lawfully in possession of his body after his death may, unless he has reason to believe that the request was subsequently withdrawn, authorize the removal of the eyes from the body for use for those purposes." In the case of a patient dying in a hospital, "the party lawfully in possession" of the body of the deceased is the hospital management committee or the board of governors, and they are further strengthened by the following clause in the act: "without prejudice to the foregoing subsection, the party lawfully in possession of the body of a deceased person may authorize the removal of the eyes from the body for the purpose aforesaid unless the party has reason to believe: (a) that the deceased has expressed an objection to his eyes being so dealt with after his death, and had not withdrawn it; or (b) that the surviving spouse or any surviving relative of the deceased objects to the deceased's eyes being so dealt with." As the number of hospitals at which corneal grafting is done is limited at the moment, the Ministry of Health suggests that the most convenient way of supplying them with eyes is to organize around each such hospital a group of other hospitals that could send them eyes as required.

Postinfectious Encephalitis.—During 1951, a total of 119 cases of postinfectious encephalitis was reported. The Ministry of Health has published an analysis of 91 of these cases in which full information was available. This shows the infectious diseases associated with these cases and the number of cases for each disease: measles 32; mumps 37; chickenpox 9; influenza 4; vaccinia 2; rubella 2; herpes 2; whooping cough 2; and scarlet fever 1. There were six fatal cases, four associated with measles and two associated with influenza. Encephalitis following measles was reported twice as frequently during 1951 as in 1950 and encephalitis following mumps was reported three times as frequently. The rise during 1951 in the incidence of encephalitis following measles was commensurate with the rise in the reports of measles, which were nearly twice as numerous in 1951 as in 1950.

Marriages and Births.—The Registrar-General's statistical review for 1950, which has just been published, shows that the birth rate in 1950 was 15.8 per thousand population: an increase of 0.9 per thousand from the previous year. The comparable rate for the United States was 23.4. There were 35,250 illegitimate live births, representing 5.1% of the total number of live births. This compares with 63,420 in 1945, which repre-

sented 9.3% of all live births. Stillbirths numbered 16,084: a rate of 23 per thousand total live births and stillbirths, which is the same as in the previous two years. The marriage rate was 16.3 persons married per thousand population, compared with 17.1 in 1949. Of the legitimate maternities, 40.2% were to mothers with no surviving previous children, 32.3% to mothers with one surviving child, and 14.7% to mothers with two. There were 8,979 maternities resulting in multiple births, of which 98 were triplets and 1 was quadruplets. Of 92,136 confinements that took place within 11½ months of marriage, 38,059 occurred within 6½ months of marriage. Of births originally registered as illegitimate, 2,784 were reregistered as legitimate on the subsequent marriage of the parents. There were 13,036 children adopted during the year, 10,441 of whom were illegitimate. In 45% of the adoptions of legitimate children the adopter was related to the child; the corresponding figure for illegitimate children was 35%.

NORWAY

Fungus Infections Among Industrial Workers.—The workers in the Norwegian textile industries have long been familiar with a disease known to them as "mökkasjuken," to which employees working on hemp, jute, and the like are particularly subject. This disease, known as "hemp disease" in the Anglo-Saxon countries, is characterized by influenza-like symptoms with brief attacks of fever and coryza. Newcomers to a factory are particularly liable to attacks of this disease after they have been employed for a couple of days. A degree of immunity is usually acquired after some time, but its duration is apt to be brief, and absence from work for a week end may lead to a recurrent attack every Monday. In contrast to the general discomfort provoked by this disease is the absence of well-marked physical signs, and only after it has existed for several years do bronchitis and asthma develop in some of its victims.

Till quite recently no extensive, bacteriological investigations were carried out in Norway with a view of elucidating the problems connected with this disease. In 1950 Dr. Otto Andersen published an account of an infection of the respiratory tract of a carpenter who was subject to intermittent attacks of fever after being exposed to massive inhalation of spores of Aspergillus fumigatus and Rhizopus arhizus. He showed by skin tests that his patient was allergic to both these fungi. A systematic study of the problem was started early in 1950, under the auspices of the Institute for Industrial Hygiene (in the charge of Dr. Arne Bruusgaard) and the State Institute for National Health. Much of this research was carried out by Dr. Edel Dietrichson and Dr. Signy Reiersöl, and the latter has given an account of it in the organ of the Norwegian Medical Association, *Tidsskrift for den norske laegeforening*, in the July 1, 1952, issue. The sputum of 76 workers in hemp, jute, and other industries, as well as the dust in the rooms in which they worked were examined bacteriologically. Serving as controls were 36 laboratory workers whose usefulness as controls was slightly impaired by their average age being relatively young. The findings of some species of Aspergillus were significantly greater among the workers in hemp than in the control group, but in this group there was also quite a variety of findings. As an outcome of these investigations prophylactic measures were recommended, primarily with regard to better ventilation of the rooms in which these workers are employed. Simple dust masks would probably be useful, seeing that the fungi and particles of dust found were comparatively large. It should be noted that in these investigations sensitization tests were not carried out and so did not establish any causal relationship to the bacteriological findings to the clinical picture.

Tuberculin Control of BCG Vaccination.—Since November, 1950, the Norwegian State Screening Service (Statens Skjermbilledfotografering) has carried out a nation-wide follow-up examination of persons vaccinated with BCG. Reporting on this undertaking, Dr. Arvid Evjen points out that it was carried out by specially trained nurses authorized to vaccinate with BCG and test with tuberculin (the adrenalin-Pirquet test with Danish tuberculin). They examined 19,479 adults who had been vaccinated with BCG two to three months earlier. They classed a tuberculin reaction as positive when its diameter measured 4 mm. or more and as negative when it was absent or only 1 mm. Reactions measuring only 2 or 3 mm. were classed as doubtful. The nurses also kept records of all complications, and they revaccinated with BCG all whom they found to be tuberculin-negative. It had been expected that there would be wide variations in the reactions in different parts of the country, but, on the whole, such geographic variations were not very marked. On the other hand, it was surprising to find how greatly the effects of different batches of the vaccine varied. Thus, vaccine B-336 gave positive reactions in less than 10%, while vaccine B-351 did so in nearly 100%. On the whole, a positive reaction was obtained in 65%, a negative reaction in 14%, and a doubtful reaction in 21%. While one batch of the vaccine yielded reactions with a mean diameter of less than 2 mm., another batch would yield a mean of more than 7 mm.

Discussing these disquieting findings, Dr. Evjen notes that the best results with BCG vaccination, as judged by positive tuberculin reactions, were obtained in the winter months, January to March in particular. This suggests that the antigen properties of BCG may be influenced by such factors as light and heat. The range of variation in the frequency of positive reactions was wider than that for negative reactions. It has generally been assumed that the effects of a vaccine depend on the number of living bacteria in it, but Krohn's investigations give no support for this opinion, for he has been unable to find any correlation between the number of bacteria in a vaccine and the allergy it provokes. Dr. Evjen admits that we have still much to learn about the connection between the effects of BCG, as indicated by the tuberculin test, and the immunity it confers, as indicated by freedom from clinical tuberculosis.

Drive for More Extensive Use of Baths.—The Norwegian Bathing Association, the National Association Against Tuberculosis, and various other bodies are taking part in a drive for the more extensive use of baths in general and the Finnish steam bath in particular. In an appeal to the public, Prof. Axel Ström points out that the "badstubad" has of late been given preference to other bath types because it is more healthful and is more easily introduced into country districts where other types of bath entail prohibitive costs. Professor Ström points out that his countrymen are not sufficiently bath conscious, as can be witnessed by the following figures from the census of 1946: In this year only 42% of the homes in Oslo contained a bath of their own. Yet this figure was far higher than that for the other towns in Norway, Bergen coming next with 29% and medium-sized towns with 15% on the average. Only 6% of the homes in rural areas throughout Norway have a bath of their own, and in the north of Norway only 2% of the homes in rural areas enjoy this privilege. A pamphlet on the subject of baths has recently been issued by the Norwegian Bathing Association. Householders wishing to provide themselves with a badstubad can apply for government grants, and measures are now in force for facilitating the provision of the necessary material that might otherwise not be forthcoming on account of the housing shortage and government control of building material.

BCG Laboratory in Bergen.—The BCG laboratory in Bergen has now changed ownership and its address. This means that the Norwegian National Association Against Tuberculosis has handed over its BCG laboratory to the government, and from July 1, 1952, the title of this laboratory becomes the State BCG Laboratory. As in the past, it will serve the whole country. Dr. E. F. Krohn, who assisted Dr. Böe in this laboratory, is succeeded by Dr. Hennie Haaland, who has had long experience in this laboratory, having worked as technical assistant to Dr. Konrad Kirkhaug when he was in charge of the laboratory. In his report for 1951, Dr. Böe points out that the laboratory issues two BCG preparations, one for vaccination by intracutaneous injection and one for vaccination by percutaneous administration. Although 205,925 ml. of the two vaccines were issued this year, 136,746 vaccinations were reported to the laboratory as having been carried out in 1951. This figure is considerably smaller than the actual number of vaccinations.

CORRESPONDENCE

UNTOWARD EFFECTS OF PHENYLBUTAZONE (BUTAZOLIDIN®)

To the Editor:—Phenylbutazone (butazolidin®) a member of the pyrazol series, is a drug of undoubted value in various rheumatic disorders, but it must be used with more than usual caution. Our observations do not substantiate reports in the literature that the drug is of low toxicity.

Within the past three months, phenylbutazone was administered orally to 20 patients with rheumatoid arthritis. For the first three days doses varied from 600 mg. to 200 mg. daily taken immediately after food. After this 200 mg. was given daily.

Severe gastrointestinal disturbance occurred in two patients. In the first patient sudden epigastric distress, weakness, nausea, and thirst developed followed by a large hematemesis and melena. There was no previous history of a stomach disorder. Blood dyscrasia and thrombocytopenic purpura were ruled out. An esophagram and gastrointestinal x-ray series were completely normal. Therapy with the drug was promptly discontinued, and the epigastric symptoms subsided. The second patient was a middle-aged woman with severe rheumatoid arthritis who had a bleeding peptic ulcer. In this case a preexisting ulcer was reactivated. In connection with the gastrointestinal complication, there is evidence in the literature that damage to the adrenal glands may be accompanied by a high incidence of ulcerative lesions of the esophagus, stomach, and duodenum (Woldman, E. E.: Acute Ulcers of Upper Gastrointestinal Tract: Their Relation to Systemic Stress and Adrenal Damage, *J. A. M. A.* **149:** 984 [July 12] 1952).

In six patients receiving maintenance therapy of 200 mg. daily, there was definite evidence of sodium retention (ankle and pretibial swelling). Bone marrow depression was observed in three cases (leukopenia and anemia); substernal pressure with ptyalism, stomatitis, and intertriginous lesions were recorded in separate instances. Three patients suffered a sudden relapse in spite of increased doses. In four patients a dermatitis (morbilliform rash) developed accompanied by a low fever. Two patients complained of blurred vision and mild conjunctivitis. All of these symptoms subsided on discontinuance of therapy with the drug.

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FATALITIES FOLLOWING "STILBAMIDINE" THERAPY

To the Editor:—The article "Successful Treatment of Actinomycosis with 'Stilbamidine'" by J. Miller and associates in the Sept. 6 issue of The Journal, page 35, is indeed a commendable contribution; however, this article and the previous article by Schoenbach, Miller, and associates (*J. A. M. A.* **146:**1317 [Aug. 4] 1951) on blastomycosis failed to mention that fatalities do occur following therapy with "stilbamidine." I reported one fatality as a result of yellow atrophy of the liver in disseminated coccidioidomycosis (Cohen, R.; Bos, J., and Webb, P. A.: Co-existing Coccidioidomycosis and Tuberculosis in Children: Report of 3 Cases, *Arch. Pediat.* **69:**267 [June] 1952). Dr. Ian McDonald of Los Angeles told me that he was aware of another patient with acute yellow atrophy of the liver who died following "stilbamidine" therapy for a neoplastic disease. The authors, in my opinion, should have mentioned in this article that "stilbamidine" solutions are unstable and become toxic if not made up fresh and used fresh, as mentioned in their article in *Annals of Internal Medicine* (July, 1952).

I recommend that liver function tests be run while a patient is undergoing this therapy. The side-effects that "stilbamidine" can cause are to be kept in mind as well as the good it can do in blastomycosis and actinomycosis.

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DEPIGMENTATION FROM ADHESIVE TAPE

To the Editor:—Blank and Miller, in their excellent article on rubber adhesives in shoes as the cause of dermatitis of the feet (*J. A. M. A.* **149:**1371 [Aug. 9] 1952) state that they did not observe depigmentation action of the monobenzyl ether of hydroquinone but only the sensitizing property. The photographs below are representative of several patients seen here in the last two years with what we call "adhesive tape vitiligo," i. e., depigmentation presumably due to the monobenzyl ether of hydroquinone used as an antioxidant in the rubber of ordinary surgical tape.

All the patients of this type we have seen have been Negroes. Although their main depigmentation has been due to adhesive tape, both patients in these photographs show depigmentation of the feet in a pattern conforming to that of the rubber-containing shoes they wore. The patients we have observed have described no or very little inflammation preceding the depigmentation. A few details on the two patients shown in the photographs may be of interest.

In case 1 (*A* of the figure) the process started on the fingers in 1949 a few months after the patient went to work in a bedspring factory where she, like many of the other employees, wrapped her fingers in adhesive tape to protect them in her work. The

incidence of adhesive tape vitiligo among workers in this factory is high because of this practice. In 1950 the patient had a gynecological operation. Depigmentation developed where a needle was taped into an antecubital vein and where an indwelling catheter was anchored in place.

In case 2 (*B* of the figure) the depigmentation started in 1948 after the patient was stabbed on the anterior aspect of the right thigh and covered the area with a liberal amount of adhesive tape. Subsequently, adhesive tape applied to the right index finger caused vitiligo as did the rubber contained in brassière and shoes.

We wish to urge that the use of rubber containing the monobenzyl ether of hydroquinone be discontinued in the manufacture of adhesive tape. The studies of Blank and Miller on the sensitizing properties of this agent make it even more imperative that care be exercised in the choice of rubber for adhesive tape.

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WATER CONNECTION TO AUTOPSY TABLE

To the Editor:—Recently, an inspection of a hospital revealed a water connection to the autopsy table in the morgue, through which back siphonage might cause contamination of the water supply. This hazardous situation probably would not have been discovered at this time had not an outbreak of illness occurred in this hospital among nurses and student nurses employed there. Contaminated water was indicated by results of our laboratory examinations which, in turn, led to a careful inspection of the plumbing of the building.

Three possible means of siphonage were found to exist: 1. There was a submerged inlet in the sink attached to the side of the autopsy table. The water in this sink was used by the pathologist for rinsing his gloved hands, his instruments, and the sponges used in the work on the cadaver. 2. A perforated pipe used for flushing was placed below the rim of the autopsy table at one end, where it could become submerged. 3. A rubber tube was also connected to the water supply. Water carried through this tube was used for washing the body cavities, and the end of the tube might be left submerged in fluids in such cavities.

Inspection revealed that in an obviously futile attempt to prevent siphonage, a vacuum breaker had been installed in the water supply line; however, the installation was not properly made, inasmuch as the vacuum breaker was normally under pressure. Experience has shown that when this type of vacuum breaker is installed in this way it usually becomes inoperative after a period of time, owing to the sticking of the rubber washer to the metal seat. Thereafter, when a partial vacuum occurs in the water supply pipes, the vacuum breaker fails to operate and back siphonage may occur.

This matter is being taken up by us with the manufacturer of the autopsy table, to prevent similarly dangerous installations in the future, and we are checking other hospitals here. One cannot help wondering, however, how many other hospitals throughout the country may have similar water connections in their morgues.

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STEROID THERAPY IN ADDISON'S DISEASE

To the Editor:—The prominence that has been given to steroid compounds has led to their empirical use in a large variety of conditions, including Addison's disease. Whatever may be said of their value in arthritis and some other conditions, they cannot be claimed as a panacea. Furthermore, I do not believe their use as substitutional hormone therapeutic agents, particularly in the treatment of Addison's disease, is based on sound physiological, pathological, or clinical premises.

A water-soluble agent of proved potency "interrenalin," is, however, available for satisfactory clinical use. It preserves life and good health in animals whose adrenals have been completely removed and has been demonstrated to be effective as a substitutional hormone in treatment of cases of proved Addison's disease.

Not long ago, I was confronted with a young woman in her early twenties who had grown considerable hair on parts of the body where there had been none previously and had noticed that her voice was becoming masculine. She was being treated for Addison's disease by injections of testosterone! Even that is less alarming than the fatalities that have come to my attention as additional evidence of the toxic action of steroids. One of these cases illustrates my point. A. M. was treated for Addison's disease for one and one-half years, with unsatisfactory results. Following a crisis, I saw him for the first time, in consultation with his physician, in early 1937. On my recommendation, oral administration of "interrenalin" was begun, together with intravenous administration of isotonic sodium chloride solution occasionally in the early period of treatment. From May, 1937, to July, 1951, he was maintained in a good state of health, occasionally requiring parenteral administration of the sterile solution of "interrenalin" to prevent or combat subacute exacerbation.

During that time, while he was in excellent condition, a consultant suggested that he be given corticotropin (ACTH). Despite my objection, he was finally subjected to a change of treatment. The new idea was ". . . to use cortisone in sustaining doses, with occasional parenteral desoxycorticosterone acetate." After a short period of this treatment I learned that it resulted in the development of an acute psychosis. He was placed in a psychiatric institute, where he died. Autopsy confirmed the diagnosis of Addison's disease and extensive degeneration of the adrenal glands.

There have been other reports of ill effects and serious consequences, including fatalities, following the clinical use of steroid "hormones." Among the common results of such therapy are abnormal blood pressure effects, circulatory failure, edema and anasarca, derangements of secondary sex functions, psychoses, conditions simulating Cushing's syndrome, and various other acute, subacute, and chronic disturbances. Even production of cancer may be a possibility in prolonged use of steroids.

Reports on the value of "interrenalin" as "substitution therapy" and administration of isotonic sodium chloride solutions in the effective treatment of Addison's disease have been published by me since 1929 (Rogoff, J. M., and Stewart, G. N.: *J. A. M. A.* **92**:1569 [May 11] 1929. Rogoff, J. M.: *ibid.* **99**:1309 [Oct. 15], 1932; *Canad. M. A. J.* **24**:43, 1931; *J. Clin. Endocrinol.* **2**:43, 1942; *Am. Pract.* **2**:39, 1947). The gratifying beneficial results of such treatment compared very well with the results of similar treatment in experimental animals that were subjected to loss of adrenal cortical function (Rogoff, J. M., and Stewart, G. N.: read at the 38th Annual Meeting of the American Physiological Society, Cleveland, 1925; *Science* **66**:327, 1927; *Am. J. Physiol.* **84**:660, 1928; *ibid.* **84**:649, 1928. Rogoff, J. M.: *Proc. California Acad. Med.*, 1930; *Arch. Path.* **38**:392 [Dec.] 1944). Those experiments constituted the basis on which the modern hormone treatment of Addison's disease and lesser forms of adrenal insufficiency was founded.

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SIMPLE REMOVAL OF OCULAR FOREIGN BODIES

To the Editor:—As the author of the article entitled "Simple Removal of Ocular Foreign Bodies," on page 119 of the Jan. 12, 1952, issue of THE JOURNAL, I take pleasure in answering Dr. Arthur J. Bedell's letter (*J. A. M. A.* **148**:863 [March 8] 1952) to you, a letter that is fraught with serious implications.

Without ascertaining the facts, Dr. Bedell states "the foreign body never was inside of the globe," a statement that strikes at the essence of the paper and that is completely contrary to the fact. Dr. Sol S. Fineman, formerly of the Mayo Clinic and chief of roentgenology at Montefiore Hospital in New York City, reported the BB shot to be in the globe. Competent ophthalmologists have heard this report and have examined slides of these roentgenograms at meetings of the Pan American Congress of Ophthalmology, the Wilkes-Barre Ophthalmological Society, the American Academy of General Practice, and the British Medical Association of the Caribbean Area. They have not questioned either the location of the foreign body or the procedure for its removal. The foreign body was in the globe.

Dr. Bedell further states: 1. "Any competent ophthalmologist will quickly recognize this [the yellow gelatinous material] as conjunctival secretion." In my 23 years of practicing ophthalmology, I have never seen conjunctival secretion similar to this material, nor have I seen such material attached to BB shots lodged in the conjunctival cul-de-sacs. Furthermore, I did see this material as it was being withdrawn from the globe coming through the sclera and adherent to the BB shot. 2. "All physicians should avoid pressure on the eyeball as a means of removing an intraocular foreign body." Dr. Bedell is entitled to his opinion, but, under the conditions presented in my article, the foreign body should be expressed to avoid, not to cause, as Dr. Bedell has said, "serious disaster and a disheartening outcome."

Let us not be quick to try to place a confrère in an embarrassing light unless we first make certain that the person in question is in error.

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COUNCIL ON MEDICAL SERVICE

This is the sixth in a series of studies made by the Committee on Indigent Care of the Council on Medical Service concerning local plans for medical care of the indigent. A general introduction to the series appeared in the May 10, 1952, issue of THE JOURNAL, *pages 188-191. The fifth study (Gary, Ind.) appeared in the Nov. 1, 1952, issue, pages 952-954.*

MEDICAL CARE FOR THE INDIGENT IN LARAMIE COUNTY (CHEYENNE), WYOMING

This is a study of medical assistance benefits extended to indigent and medically indigent residents of Laramie County, Wyoming. Tallies obtained in the most recent census disclosed a total county population of 47,662 persons; of these, 31,807 were residents of Cheyenne, the state capital and county seat. The Union Pacific and Burlington railroads give sustenance to a large segment of the county's inhabitants, for Cheyenne has ranked historically among the principal shipping terminals in the Rocky Mountain area. Her stockyards and contiguous cattle and sheep ranches provide important additional sources of local income. Strikingly modest welfare case loads bear witness to a general economic stability in this community.

ELIGIBLE POPULATION

To the Laramie County Department of Public Welfare has been entrusted the community's responsibility for the preservation of the health and well-being of the poor. Applicants for assistance grants are screened and certified by welfare caseworkers. Categorical assistance eligibility requirements, as established by the Federal Security Administration and the state welfare department, call for a full year's residence in the state prior to certification. A year's residence in Laramie County specifically is prerequisite to certification for general assistance. The awarding of any form of stipendiary assistance automatically entitles the grantee to all benefits provided by the medical aid program. All certified assistance clients, regardless of the category under which subsistence grants are extended, are offered medical assistance of equal scope and quality. In table 1, Laramie County DPW case loads during the month of July, 1952, are given as tantamount to eligibility for medical assistance. The total number of persons eligible, i. e., 669, represents 1.4% of the total county population.

TABLE 1.—*Persons Eligible for Medical Assistance During July, 1952*

	Number Eligible
General Assistance	27
Categorical Assistance	
Old Age Assistance	386
Aid to Dependent Children	85
Aid to the Blind	6
Aid to the Permanently and Totally Disabled	37
Childrens' Services	68
Hospitalized Assistance Clients	60
Total	669

The medical assistance program is extended to children who are wards of the juvenile courts ("Childrens' Services") as well as to persons made eligible through certification under one of the general or categorical assistance programs. The names of persons hospitalized at public expense are removed from stipendiary assistance rolls for the duration of their commitment; thus, they are listed separately in table 1.

ADMINISTRATION

In November, 1950, the Laramie County Medical Society, in cooperation with the county DPW, founded and authorized benefits under the current medical aid program. The medical society is in no way concerned with the establishment of eligibility for the program but has been charged with the supervision of all of its medical aspects. The society's County Welfare Committee is responsible for the regulation and coordination of physicians' services in home and office care. The chairman and four physician members of this committee are appointed yearly by the society president. Inhospital medical care is overseen by the chiefs of hospital services, who are appointed by the hospital staff. Both staff members and chiefs of services are, of course, members of the medical society.

SERVICES AVAILABLE

The welfare client certified by the Laramie County DPW is offered free choice of physician in home and office care. Although this free choice is nominally extended to inhospital care, such attention is usually provided by the chiefs of hospital services. Prior to the initial visit to a physician's office, the welfare client must obtain from the welfare offices a "medical referral form" avouching his eligibility. This form may be either deferred or submitted retroactively in cases of emergency. With eligibility established, the attending physician may, without separate authorization, institute any course of therapy he may deem advisable.

For provision of pharmaceuticals, the welfare department allows local druggists to bid for the entire welfare subscription. Thus, drugs may be obtained at only one of the local pharmacies. There are no definite limits placed on either the type of drug or the quantities thereof that may be prescribed. To insure DPW payment, the physician simply marks his prescriptions "welfare." As a double check against eligibility, the pharmacist routinely telephones the welfare offices before these prescriptions are filled.

Laramie County Memorial Hospital, the only tax-supported general hospital in Cheyenne, is used for indigent care. Its staff is comprised of the entirety of the county medical society's membership. Welfare clients are admitted to this institution on the sole recommendation of the attending physician; no additional authorization is required; however, the hospital admitting staff does reconfirm eligibility by telephoning the DPW prior to the acceptance of alleged welfare clients.

Inasmuch as Cheyenne has no licensed nursing homes, a wing of the hospital is set aside for care of convalescing welfare patients. This physical arrangement provides for immediate transfer between facilities available for hospitalization per se and those available for convalescent care; however, no single person or agency is vested with the express power to force transferral or removal from either the hospital proper or the "welfare annex." Here, again, the entire responsibility remains in the hands of the attending physician or, in this instance, in the hands of the chief of service to whom each case is assigned.

The Cheyenne City-Laramie County Health Unit supplies to all citizens of the community the services of five full-time public health nurses. While instruction is their primary duty, actual home nursing is provided where the need is great. Physical therapy is authorized by the medical aid program and may be supplied either through the Memorial Hospital or through the offices of private physicians. All laboratory procedures and almost all roentgenograms are provided by the hospital. Ambulance services and special appliances are also made available to the welfare clientele.

PROVIDERS OF SERVICES

The Laramie County Medical Society has entered into a formal contract with the county welfare department for the provision of physicians' services to the certified indigent. Thus, only members of the medical society are eligible for participation in the medical aid program. Among the 42 licensed physicians in active practice throughout the county, 40 are society members. All of these 40 have signed written agreements to cooperate with the program. Furthermore, within the program's brief tenure, each of these 40 physicians has actually had some share in the discharge of its responsibilities.

Twenty-six of Laramie County Memorial Hospital's 166 beds are situated in the welfare annex. The annex is exclusively consigned to welfare convalescents, of course, but, in the wards of the hospital proper, welfare patients receive optimum services and are in no way segregated from private patients. The computed average number of beds required exclusively for welfare patients during 1951 was 39.6 (includes annex beds). De Paul Hospital (125 beds), operated by the Sisters of Charity of Leavenworth, Kan., is also located in Cheyenne. It is not, however, utilized as part of the official welfare program.

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PAYMENT FOR SERVICES

The contract negotiated between the Laramie County DPW and the county medical society stipulates that a flat $150 per month be awarded to the medical society in payment for inhospital physicians' services. In addition, a maximum of $400 per month will be set aside for the payment of individual physicians for home and office care. For purposes of uniformity and regulation of fees chargeable, a rudimentary fee schedule has been agreed on by the society and the DPW. This schedule is reproduced in table 2.

TABLE 2.—*Schedule of Fees Chargeable for Home and Office Treatment of Laramie County Welfare Cases*

Calls, city, day	$4.00
Calls, city, night (8 p. m. to 8 a. m.)	6.00
Country calls, 50¢ per mile plus call fee	
Office consultation	3.00
Physical examination	5.00
Arsenical injection	2.00
Bismuth injection	2.00
Tetanus (15,000 units) injection	4.00
Immunization, influenza, pneumonia, etc.	2.00
Marriage examination	5.00
Basal metabolic rate determination	5.00

Fees for services not included here are individually handled through adjudication by the county welfare committee of the medical society. Each month local physicians submit to the DPW itemized statements relevant to services rendered welfare clients. The charges listed are subject to the approval of the medical society treasurer. Physicians' bills for a single month are totaled, and, if the figure so derived is not in excess of $400, the specified fees are paid in full. Should the total be in excess of this maximum, however, the contract provides that the bills be accordingly prorated. Individual physicians receive no reimbursement for services provided welfare clients during hospital commitment. The $150 awarded monthly to the medical society is used, with other society funds, for the support of the society's medical library and for the establishment of a loan fund for student nurses at the University of Wyoming.

The current contract negotiated with private pharmacies provides that settlement be made for the filling of welfare prescriptions at the rate of cost plus 12%. DPW payment for ward care at Laramie County Memorial Hospital is based on the computed average cost for services; this rate, currently $8.30 per patient per day, is applicable to the welfare annex as well as to other hospital wards. For additional inpatient and outpatient services, e. g., roentgenograms, physical therapy, and laboratory tests, the hospital receives reimbursement at the individual cost. The city of Cheyenne and Laramie County pay a flat $150 per month apiece for the provision of ambulance services to all county residents who are themselves unable to pay.

COSTS AND FINANCIAL SUPPORT

In July, 1952, the total cost of the medical aid program was $13,452.33. With a total eligibility for medical assistance of 669 persons (table 1), the computed cost per eligible person amounted to $20.11 for that month. In table 3 is presented a breakdown of expenditures for specific services during the month. The costs per eligible person were derived by dividing total eligibility into total costs.

TABLE 3.—*Total Costs and Costs per Person Eligible for Medical Assistance During July, 1952*

	Total Cost for Services	Cost per Person Eligible
Physicians' services	$ 937.00	$ 1.40
Hospitalization	11,576.35	17.31
Drugs and appliances	357.88	.53
Other services	581.10	.87
Totals	$13,452.33	$20.11

It is noteworthy that the costs of physicians' services are in excess of the $550 ($400 plus $150) cited by the medical society DPW contract. In view of the fact that in previous months the costs for home and office medical care fell short of the $400 maximum, the DPW voluntarily paid physicians' July bills in full rather than prorating them as the contract provides. Herein is borne irrefutable testimony to the affability and unanimity among agencies and individuals participating in the Laramie County Medical Aid Program.

The costs of hospitalization represent 85% of the expense of the entire program. If, however, we are to evaluate the cost of hospitalization exclusive of convalescent care, we must subtract from the $11,576.35 the cost of maintaining DPW clients in the welfare annex. For 26 beds occupied for 31 days during July at $8.30 per bed per day, the computed cost for convalescent care alone was $6,708.40. Thus, the cost of hospitalization in its limited sense was $4,867.95, or $7.28 per eligible person.

The statutes of the state of Wyoming assert that the state legislature is not entitled to levy taxes to support health programs; furthermore, FSA rulings preclude federal matching of assistance grants without proportionate state matching. Thus, the entire medical aid program in Laramie County must be locally subsidized. State and federal support is, according to the letter of the law, automatically withdrawn when a welfare client is hospitalized; so rigidly enforced are the regulations that even the usual subsistence stipends may not be advanced against the costs of convalescent care in the welfare annex.

The Laramie County Commissioners yearly assess a property tax of approximately 0.2 mills for the support of medical assistance exclusive of hospitalization. A separate levy of approximately 1.8 mills is assessed for hospitalization. If, at the end of the fiscal year, these funds are inadequate, the medical aid program must be curtailed.

SUMMARY

Upon the indigent and medically indigent citizenry of Laramie County, Wyoming, are bestowed medical care benefits that are, in most respects, similar in scope and quality to those made available locally to the nonindigent. Here a single program is established for the proffering of equal medical assistance opportunities to all certified welfare clients. Moreover, the petitioning of medical services by the indigent is greatly expedited by the minimal number of prerequisite authorization procedures.

The program offers free choice of physician in home, office, and inhospital care, so providing nominally for continuity of medical care. The final authority, however, regarding treatment of hospitalized welfare clients is given into the hands of the chiefs of hospital services. In addition, neither the attending physician nor the chief of service is in any way remunerated for treatment of hospitalized indigents. Thus, the basic structure of the program in no apparent way encourages any physician toward the carefully planned attention often so vital to the rapid and complete recovery of hospitalized patients.

The disproportionate costs of hospitalization indicate additional weaknesses in the evolution of the program. In answer to this problem, a committee from the medical society might routinely review hospitalized persons for purposes of recommending either discharge or transferral to the welfare annex. (High costs of hospitalization have been minimized in similar fashion in other communities.) This would by no means completely solve the problem in Cheyenne, however, for here the costs of convalescent care approximate those of hospitalization per se. It would appear, therefore, that less expensive facilities should be utilized for the provision of convalescent care. Apparently, no such facilities are immediately available, but it is difficult to imagine that there are no facilities in a community of Cheyenne's proportions that might be converted to this use. Given reduced per diem costs of convalescent care and a physicians' committee responsible for immediate discharge of welfare patients from the hospital into homes providing convalescent or domiciliary care, greater funds might well be available locally for reimbursement of physicians for inhospital services. Furthermore, if, in some other institution or institutions a demarcation might be made between domiciliary and medical convalescent care, greater federal and state matching might be achieved for support of the total welfare program.

Despite any imperfections in the Laramie County medical aid program, in the majority of instances its operation is both smooth and effective. The medical society, the welfare department, individual physicians, hospital administrators, and all other agencies concerned have a nonpartisan interest in the instrumentalization and refinement of the program so that ultimately the indigent will be provided with the very best medical care available.

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BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Charitable Hospitals: Liability for Negligence of Laboratory Technician.—The plaintiffs sued for damages for the death of their wife and mother, which allegedly occurred as a result of the negligence of one of the defendant's laboratory technicians who carelessly caused the deceased to be transfused with type 2 instead of type 4 blood. From a judgment in favor of the plaintiff, the defendant hospital appealed to the Supreme Court of Mississippi.

A laboratory technician, acting upon proper orders, took a blood sample of the deceased and of another patient on the same floor of the defendant hospital, for the purpose of determining their blood types for transfusion purposes. The types were properly and correctly ascertained as type 4 for the deceased and type 2 for the other patient. In preparing the blood to be used by each patient the following day, however, the laboratory technician reversed the two labels. The result was that, during surgery the next morning, the deceased was transfused with type 2 rather than type 4 blood. Although all known methods of reviving the deceased were used as soon as the operating surgeon discovered the cause of her sudden relapse, the deceased died about 24 hours later. The death certificate showed that the patient died from "acute hemolytic anemia, due to blood transfusion of wrong 'type.'" The jury found that the death was due to the negligence of the laboratory technician. It also found that the defendant hospital had been in no way negligent in selecting and retaining the technician.

This brings us to a consideration of a third and final issue in the case, said the Supreme Court, that is to say whether or not the defendant hospital is liable in damages for the negligent act of its employee, even though the record fails to show that its governing authorities were negligent in his selection, employment, or retention as a laboratory technician, the liability to rest upon the theory that *qui facit per alium facit per se*. Such liability was denied under some of the former decisions of this court and the question was whether such cases should now be overruled. The three hospital cases here under consideration, said the Supreme Court, if followed in the instant case would necessitate a reversal of the judgment appealed from. These cases declare that, where a patient is injured in a charitable hospital by the negligence of an employee, the remedy of the person injured is against the employee alone whose negligence caused the injury and not against the hospital, where such hospital has exercised due care and caution in the selection, employment, or retention of such employee. It is to be conceded that these cases are in accord with the decisions of the courts of many other states but are in conflict with many cases from other jurisdictions, some of which hold in favor of liability on behalf of strangers and paying patients who may be injured through the negligence of an employee of a charitable institution, some for liability in favor of any person so injured or killed, whether stranger, paying, or charity patient, and others denying relief only as to the beneficiaries of the charity. Some hold in favor of absolute immunity and others for total liability, but a majority of the courts permit strangers to the benefits of the charity to recover.

We are not concerned in the instant case, said the court, with the question of whether or not a charity patient would be entitled to recover if injured through the negligence of an employee of a hospital that is chartered and operated as a charitable institution; nor are we concerned with the question of whether a student who pays tuition in an amount far below the cost of furnishing him the facilities offered by a denominational college, or other institution that is operated as a charitable one, is entitled to recover damages for the negligence of an employee thereof, but we are concerned here with the question alone as to whether or not a paying patient, who has been injured through the negligence of an employee of a hospital that is rendering service for the most part to paying patients, or rather whether the heirs at law in this case on account of the death of the patient because of such negligence, are entitled to recover, where full compensation has been paid to the hospital for the room, board, and the other services rendered by the hospital employees, and where the patient has therefore not received the benefit of any charitable work done by the institution. We confine this decision to that issue alone.

It should be first recognized that the "rule" that grants immunity from liability for the negligent acts of the servants and employees of charitable institutions is itself an exception to the general principles of liability; that the law on the subject is now, and has been for the past several years, in a state of flux; that, in those states where the courts are unfettered by any precedent in their own jurisdiction on the question, they have declined to subscribe to such doctrine because it has been fully demonstrated in the opinions of a number of courts that most, if not all, of the theories on which the doctrine of immunity has been created by the courts are wholly illogical and inconsistent with the reasons given therefore. Moreover, the scholarly treatment of the doctrine outside of the courts by text writers and eminent authors of articles in law journals is almost uniform in its criticism of this doctrine of immunity in favor of charitable institutions against liability for the tortious acts of their employees.

In response to what appeared good as a matter of public policy at an early date, many of the courts have created an immunity, which, under all legal theories, is basically unsound, and especially so when the reasons on which it was founded no longer exist. Moreover, the function of creating a public policy is primarily one to be exercised by the legislature and not by the courts. It is equally true that, when the reason for the existence of a declared public policy no longer obtains, the court should, without hesitation, declare that such policy no longer exists, and especially where the same has been created by the courts instead of by the legislature. The foundation of this immunity doctrine in favor of charitable institutions is based on these grounds. 1. The payment of damages for an injury caused by the employee of such an institution would divert the trust funds thereof from the purposes for which the institution was established and would discourage future donations to the same if the contributions are devoted to a purpose other than that intended by the donors. 2. It wrongfully extends the doctrine of *respondeat superior* to embrace corporations engaged in business not operated for profit. 3. By accepting the treatment received, a patient assumes the risk of negligence and impliedly agrees to waive liability for injury caused by the negligent acts of the employees of the charitable institution. 4. It would be better that the injured person, such as a patient at a charitable hospital, suffer his injury without recompense than that such hospital be required to pay the damages caused him through its negligence. Somewhat recently, the Supreme Court of Mississippi continued, the Courts of Arizona and Iowa each overruled two of their former decisions in a departure from the immunity doctrine theretofore announced and declared in favor of the liability of charitable institutions for the negligence of any of their employees. The Courts of Alabama, Florida, and Vermont, not being hampered by any of their previous decisions, likewise rendered opinions that we think are of unanswerable logic in holding that charitable institutions should be held liable to pay patients for the negligence of their employees the same as individual persons or other corporations are held to be liable. The opinions of the two pay patient cases from Alabama and Florida have clearly demonstrated that the four grounds hereinabove mentioned as the sole foundation on which the immunity doctrine in favor of charitable institutions is based are altogether illogical, that the reasons given for them are inconsistent with each other and with the dictates of right and justice, and that the area of protected negligence created by the decisions that still adhere to absolute immunity, except where there has been negligence in the selection, employment, or retention of the employee, is an area that should no longer be recognized. All that the defendant hospital has at stake in our failure to adhere to the former decisions, which limited its liability to cases only where there was a lack of reasonable care exercised in the selection, employment, or retention of the employee whose negligent act may have caused the injury or death of a patient, is the probable increase of insurance protection against liability for the negligence of all employees without regard to whether or not they have been prudently and carefully selected and employed, together with the inconvenience of litigating additional

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contested cases of alleged liability. Moreover, it would be in keeping with the Christian and philanthropic spirit of the contributors to a charitable institution that a patient who has paid more than cost of the services rendered by the institution should be compensated for a wrongful injury done through the negligence of one of its employees. As was pointed out in the Iowa decision referred to above, at the outset of the theory of immunity, hospitals were relatively few in number and were created and conducted solely by funds donated by public spirited persons and therefore devoted purely to charity. The granting of immunity to the hospitals that were then devoted purely to charitable purposes was proper as a basis for encouraging them. But now a vastly different situation prevails. The hospital of today has grown into an enormous business, if not largely into a commercial enterprise. They own and hold large assets, most, if not all, of which are tax free, and both the federal and state governments have become paternal to an astonishing degree. Liability insurance is available as an answer to the primary argument made in the past in support of the doctrine of immunity of these institutions, that is to say, the argument that to require the payment of judgments for damages would divert its revenues to other than charitable purposes; and the other three grounds urged for retaining the doctrine of absolute immunity have crumbled as a foundation therefore under the test of reason. Finally, it should be said that the tendency of immunity is to foster neglect and that the tendency of imposing liability is to induce care and caution in the treatment of those for whom these institutions were established. Neither the encouragement of charity and philanthropy nor the doctrine of immunity on the ground of public policy can dispel the fact that the primary interest and welfare of the public requires that one person shall not suffer an injury to his or her life or limb without recompense merely in order that all of the earnings of a charitable hospital should be devoted to the purpose of providing charity for others.

It was, therefore, the unanimous opinion of the court that the defendant hospital should be held liable to the same extent for the negligent act of its employee that proximately caused the death of the deceased as it would have been had its governing authorities failed to exercise reasonable care in his selection, employment, or retention, and furthermore that the former decisions of this court should be and the same were overruled to the extent that anything said in the opinions rendered therein are inconsistent with the views hereinbefore expressed. Accordingly the judgment of the trial court in favor of the plaintiff was affirmed. *Mississippi Baptist Hospital v. Holmes, 55 So. (2d) 142 (Mississippi 1951).*

Prenatal Injuries: Liability for Injuries to Subsequently Born Child.—This was an action for damages for injuries alleged to have been sustained by the plaintiff prior to his birth. From an action of the appellate division, sustaining the trial court's judgment dismissing the plaintiff's complaint, the plaintiff appealed to the Court of Appeals of New York.

The complaint served on behalf of this infant plaintiff alleged that, while the infant was in his mother's womb during the ninth month of her pregnancy, he sustained, through the negligence of the defendant, such serious injuries that he came into this world permanently maimed and disabled. The defendant moved to dismiss the complaint as not stating a cause of action, thus taking the position that its allegations, though true, gave the infant no right to recover damages in the courts of New York. The ruling of the trial court and of the appellate division was on the basis of Drobner v. Peters, 232 N.Y. 22, 133 N.E. 567, and the precise question, said the Court of Appeals, is: Shall we follow our former opinion in Drobner v. Peters or shall we bring the common law of this state on this question into accord with justice?

The Court of Appeals said that Drobner v. Peters, like the present case, dealt with the sufficiency of a complaint alleging prenatal injuries, tortiously inflicted on a nine month fetus, viable at the time and actually born later. In that case, finding no precedent for maintaining the suit, this Court adopted the theory of an earlier Massachusetts case taking into account, besides the lack of authority to support the suit, the practical difficulties of proof in such cases and the theoretical lack of separate human existence of an infant in utero. It is not unfair to say that the basic reason for the decision in Drobner v. Peters was absence of precedent. Since 1921, however, numerous and impressive affirmative precedents have been developed. They justify the statement in Prosser on Torts, at page 190, that: "All writers who have discussed the problem have joined in condemning the existing rule, in maintaining that the unborn child in the path of an automobile is as much a person in the street as the mother, and urging that recovery should be allowed upon proper proof."

The sum of the defendant's argument, said the Court of Appeals, is that there is no New York decision in which such a claim has been enforced. If that were a valid objection, continued the Court, the common law would now be what it was in the Plantagenet period. Quoting from an English case, the Court added, "When these ghosts of the past stand in the path of justice clanking their mediæval chains the proper course for the judge is to pass through them undeterred." The defendant also contended that any change should come from the legislature, not the courts. Legislative action there could be, of course, but we abdicate our own function in a field peculiarly nonstatutory when we refuse to reconsider an old and unsatisfactory court-made rule. Perhaps some kinds of changes in the common law could not safely be made without the kind of factual investigation that the legislature and not the courts is equipped to make. Other proposed changes require elaborate research and consideration of a variety of possible remedies—such questions are peculiarly appropriate for Law Revision Commission scrutiny, and, in fact, the Law Revision Commission has made an elaborate examination of this very problem. That study was made at the instance of the late Chief Judge Pound of this Court and was transmitted to the legislature by the Commission. Although made before the strong trend in favor of recovery had clearly manifested itself, the Law Revision Commission's comments were strongly in favor of the plaintiff's position.

Two other reasons for dismissal (besides lack of precedent) are given in Drobner v. Peters. The first of those, discussed in many of the other writings on the subject, has to do with the supposed difficulty of proving or disproving that certain injuries befell the unborn child, or that they produced the defects discovered at birth or later. Such difficulties there are, of course, and indeed it seems to be commonly accepted that only a blow of tremendous force will ordinarily injure a fetus, so carefully does nature insulate it. But such difficulty of proof or finding is not special to this particular kind of lawsuit. Every day in all our trial courts such issues are disposed of, and it is an inadmissible concept that uncertainty of proof can ever destroy a legal right. The questions of causation, reasonable certainty, and so forth that arise in these cases are no different in kind from the ones that have arisen in thousands of other negligence cases decided in this state in the past.

The other objection to recovery is the purely theoretical one that a fetus in utero has no existence of its own separate from that of its mother; that is, that it is not "a being in esse." We need not deal here with so large a subject, said the Court of Appeals. It is to be remembered that we are passing on the sufficiency of a complaint that alleged that this injury occurred during the ninth month of the mother's pregnancy, in other words, to a viable fetus, later born. Therefore, we confine our holding in this case to prepartum injuries to such viable children. Of course, such a child still in the womb is, in one sense, a part of its mother, but no one seems to claim that the mother, in her own name and for herself, could get damages for the injuries to her infant. To hold, as a matter of law, that no viable fetus has any separate existence that the law will recognize is for the law to deny a simply and easily demonstrable fact. This plaintiff, when injured, was in fact alive and capable of being delivered and of remaining alive, separate from its mother. "To deny the infant relief in this case is not only a harsh result, but its effect is to do reverence to an outmoded, timeworn fiction not founded on fact and within common knowledge untrue and unjustified."

Accordingly, the judgments of the trial court and of the appellate division were reversed, the former case of Drobner v. Peters was specifically overruled, and it was held that an unborn viable child, later born, had a right to sue for damages sustained prior to his birth. *Woods v. Lancet, 102 N.E. (2d) 691 (New York, 1951).*

Admissibility in Evidence of Chemical Tests for Intoxication.—The defendant, having been convicted of causing a death by driving an automobile while under the influence of intoxicating liquor, appealed to the Supreme Court of Colorado.

Following an accident involving the automobile that the defendant was driving and another automobile, the defendant was found lying unconscious in the middle of the highway. While at a hospital that evening, blood samples were taken from him under orders from a state officer. At that time the defendant was unconscious and unaware of what was being done. The sample of the defendant's blood so withdrawn was put in a small tube, signed, sealed, and placed in a sealed carton, which was put in a refrigerator by the medical technologist. Later the sealed carton was taken from the refrigerator and delivered to a state courtesy patrol officer, who took it to a technician in the laboratory of the Colorado General Hospital at Denver, where a test was run to determine the percentage of alcohol in the blood contained in the tube. The subsequent testimony of the technician at the trial disclosed that the defendant's blood contained 202 mg. of ethyl alcohol per hundred cubic centimeters of blood, and the testimony of Dr. Robert M. Hill, director of the chemistry laboratory at Colorado General Hospital, was that a blood alcohol level over 150 mg. would impair the judgment very seriously.

The morning following the accident the technician withdrew from the defendant's veins other samples of blood, "for a blood count." She testified that the defendant made no objection to this.

The defendant first contended that the trial court erred in permitting the laboratory technician to testify to the taking of the blood test because she was in a confidential relationship with the defendant "and he had not waived in any respect the privileges of such relationship." Our statute relating to privileged communications, said the Supreme Court, is clearly not applicable to the present case, as it does not include a nurse or medical technician. Furthermore, the Court continued, in a prior case, we held that a physician in a hospital who took a blood sample at the request of a police officer and who was not consulted by the person whose blood was withdrawn and who did not prescribe for him or accept pay from him did not stand in such a confidential relation as to make his communications privileged. Also, the Court continued, it was held in another Colorado case that evidence of a blood alcohol test is admissible where the blood was withdrawn from one who was unconscious.

The defendant next contended that he was required to give evidence against himself by the admission of the results of a test of his blood to determine its alcoholic content. Section 18, Article II, of the Colorado constitution provides, "No person shall be compelled to testify against himself in a criminal case . . ." A study of the history of the development of such constitutional provision, said the Supreme Court, indicates that the original intent was to prevent a defendant from being forced to give testimonial evidence against himself and did not contemplate the exclusion of evidence of physical facts relating to the defendant. As was said in a recent Oregon case, "The defendant was not deprived of any of his constitutional rights by the admission of the testimony here in question. He was not compelled to testify against himself. Evidence of the result of the analysis of the blood sample was not his testimony but that of Dr. Beeman, distinct from anything the defendant may have said or done. The blood sample was obtained without the use of any process against him as a witness. He was not required to establish the authenticity, identity or origin of the blood; those facts were proved by other witnesses. If the evidence here under attack is inadmissible, it is difficult to understand under what theory fingerprints procured under compulsion, or evidence concerning them, is admissible . . ." The purpose of the amendment against self-incrimination, concluded the Supreme Court, is to prevent a man from being compelled to utter words that will incriminate him and not to obliterate all evidence of physical facts showing who and in what condition he is.

Accordingly, the judgment of conviction was affirmed. *Block v. People, 240 P. (2d) 512 (Colorado, 1951).*

MEDICAL MOTION PICTURES

Foxgloves in Medicine: 16 mm., color, sound, showing time 26 minutes. Produced in 1951 by the Wellcome Film Unit for the Wellcome Foundation, London, England. Procurable on loan from Burroughs Wellcome & Co. (U. S. A.) Inc., 1 Scarsdale Road, Tuckahoe 7, N. Y.

This film presents an excellent historical review of the evolution of digitalis as a therapeutic agent in the treatment of congestive heart failure. The authors quote some important clinical observations as recorded by Sir William Withering in 1775. The pharmacognosy of the foxglove (Digitalis purpurea) and Digitalis lanata is presented, showing several aspects of production from harvest to the complex processes of isolating the purified glycoside.

The remainder of the film is devoted to the pharmacology and clinical application of digoxin, a purified glycoside, derived from Digitalis lanata. While the pharmacologic effects of this agent are illustrated chiefly in isolated mammalian and frog hearts, the normal physiology of the heart is presented by means of well-conceived and descriptive animated drawings. Both the normal electrocardiographic effects and those produced by digitalis are shown. The action of digoxin on the force of cardiac contraction, conduction, and rhythm is shown in the compensated heart as well as in hearts made hypodynamic by the administration of chloral hydrate. The efficacy of digoxin in congestive heart failure is illustrated in human subjects. The authors emphasize the virtue of this glycoside in treating congestive heart failure with associated auricular fibrillation and in the treatment of auricular flutter per se. They also make the unqualified statement that digoxin is indicated in the treatment of paroxysmal ventricular tachycardia. This statement is true only for such tachycardia of supraventricular origin. It is well known that the digitalis preparations are grossly contraindicated in any form of ventricular tachycardia of ventricular origin owing to the already existing hyperirritability.

The photography, animation, and narration are excellent. It is quite suitable for showing to general practitioners in refresher courses in medicine or pharmacology.

Surgical Approaches to Joints of the Wrist: 16 mm., color, sound, showing time 33 minutes. Produced in 1951 for the Veterans Administration by Churchill-Wexler Productions, Los Angeles. Leroy C. Abbott, M.D., Technical Adviser. Procurable on loan from Central Office Film Library, Motion Picture Service, Office of Information, U. S. Department of Agriculture, Washington 25, D. C.

Animated diagrams depict the bones, ligaments, muscles, tendons, and neurovascular structures with which the surgeon deals in various approaches to the wrist. The sections on anatomy are followed by operations employing approaches to the volar, radiovolar, ulnar, and dorsal aspects. These are treated with emphasis on the anatomy of the region. Each operation is recapitulated for greater clarity. This is an excellent demonstration of the essential anatomy in the wrist for surgical approaches. The film is well organized. The photography, animation, and narration are excellent. It is recommended for orthopedic surgeons, residents, interns, and medical students.

Surgical Approaches to Joints of the Foot: 16 mm., color, sound, showing time 31 minutes. Produced in 1951 for the Veterans Administration by Churchill-Wexler Productions, Los Angeles. Leroy C. Abbott, M.D., Technical Adviser. Procurable on loan from Central Office Film Library, Motion Picture Service, Office of Information, U. S. Department of Agriculture, Washington 25, D. C.

Animated diagrams show the anatomy of the dorsolateral and medial aspects of the foot. Operations employing approaches to the dorsal, dorsolateral, and plantar aspects and an approach to the metatarsophalangeal joint are shown. Each is recapitulated in animation. Like other films in this series, this well-organized picture is recommended for orthopedic surgeons, residents, interns, and medical students.

The film is well organized, and the photography, animation, and narration are excellent.

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MEDICAL LITERATURE ABSTRACTS

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Jingle Bells. J. Garland.—p. 215.
Observations on Effects of Corticotropin (ACTH) and Cortisone in Management of Some Postoperative Surgical Problems. D. E. Szilagyi, R. R. Margulis and G. D. Jay.—p. 217.
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Bilateral Polycystic Kidney Disease: Review of 94 Cases. C. C. Higgins.—p. 318.
Muscle Pedicle Bone Grafts: Experimental Study. J. B. Davis and A. N. Taylor.—p. 330.
Resection of Liver for Carcinoma. J. O. Shaffer and P. B. Price.—p. 337.
Leiomyoma of Cardioesophageal Junction. G. E. Schnug.—p. 342.

Effect of Gastrojejunostomy on Gastric Secretion.—The effect of gastrojejunostomy on secretion of gastric juice was studied in dogs provided with Pavlov and Heidenhain pouches, from which the total quantity of gastric juice secreted could be secured for long periods. Gastrojejunostomy caused an increase in gastric secretion of from 31 to 140% of the original level. This increase occurred only when the gastrojejunostomy stoma was placed in the body or fundus of the stomach, and did not occur at all if the stoma was placed in the antrum close to the pylorus. The increase in gastric secretion caused by a high gastrojejunostomy is due to a humoral factor, since it occurred in vagus-denervated Heidenhain pouches and was entirely prevented by excision of the antrum. A high gastrojejunostomy was just as effective in stimulating gastric secretion when the anastomosis was made on the posterior wall of the stomach as when it was made on the anterior wall. These data suggest that a high gastrojejunostomy is much more likely to be followed by gastrojejunal ulceration than is a similar anastomosis made in the dependent portion of the stomach near the pylorus.

Cortisone in Acute Hemorrhagic Pancreatitis.—A 25-year-old woman with a history of recurrent attacks of right upper quadrant abdominal pain for three years had a severe attack associated with nausea, vomiting, and pain radiating to her back. After five days she was admitted to the hospital acutely ill with fever and signs of impending shock. Wangensteen gastric suction, antibiotic therapy with penicillin, dihydrostreptomycin, and aureomycin were employed, and fluids were administered intravenously. In spite of these measures, the temperature continued to rise, reaching 106 F. The following morning the patient was in shock. Although she was placed in the Trendelenburg position and given oxygen, blood, 0.1% phenylephrine hydrochloride (neo-synephrine®), and dextrose solution intravenously, she failed to respond. By evening blood pressure was unobtainable, and the patient was rapidly nearing death. She was given 100 mg. of cortisone acetate, followed by another 100 mg. six hours later. Two hours later, the pulse rate and blood pressure could be ascertained. After a third dose of cortisone she became more alert, but because examination of the abdomen suggested peritonitis, the abdomen was opened and fat necrosis was found. At present, seven months later, she is doing well. The recovery seems to have been favorably influenced by the cortisone. The response in this patient was similar to that noted by other investigators who used cortisone in treating the Waterhouse-Friederichsen syndrome. Animal experiments are now being carried out to ascertain the possible role of cortisone in treatment of acute hemorrhagic pancreatitis.

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*Infectious Mononucleosis. R. J. Hoagland.—p. 158.
*Infectious Mononucleosis: Value of Differential Absorption Tests in Its Serologic Diagnosis. S. Leibowitz.—p. 172.
Clinical-chemical Studies of Acid-base Abnormalities: Changes in Acid-base Balance Observed in Renal and Respiratory Disease. A. Yeomans and G. H. Stueck Jr.—p. 183.
Neural Regulation of Gastric and Intestinal Motility. W. B. Youmans.—p. 209.

Infectious Mononucleosis.—After reviewing 56 cases of infectious mononucleosis occurring in previously healthy young men in an Army hospital, Hoagland believes that a reappraisal of this disease and its diagnostic criteria is desirable. All patients in his series had positive heterophil reactions in a minimum dilution of 1:56 of unabsorbed serum and 1:28 after absorption with guinea pig kidney, characteristic hematological findings, and clinical manifestations resembling acute pharyngitis or typhoid. The clinical manifestations of mononucleosis were found to be far less variable than those described in the literature. Lymphocytes usually constituted between 70 and 80% of the leukocytes. One patient had 91% lymphocytes. In four-fifths of the cases characteristic blood findings were present in the first week of illness; in the remainder they occurred during the second week of illness. Hematological changes usually persisted for one to two months. Three quarters of the patients with mononucleosis had normal sedimentation rates during the first week of illness; mononucleosis is unlikely if such accelerated rates are present during the first week. A positive heterophil reaction, however,

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Titles marked with an asterisk (*) are abstracted.

almost always appeared during the first two weeks of illness. If it is not present by that time, patients are unlikely to have mononucleosis. The author suggests that the diagnosis of mononucleosis should be restricted to cases in which there are characteristic serologic, hematological, and clinical manifestations.

Differential Absorption Tests in Diagnosis of Mononucleosis.—Leibowitz emphasizes that the sheep cell agglutination test of Paul and Bunnell is not specific for infectious mononucleosis. Normal Forssman heterophil antibodies have been reported in titers up to 1:896 in diseases other than infectious mononucleosis. Therefore, whenever the heterophil antibody titer of a patient's serum is 1:896 or lower, the serum should be absorbed with guinea pig kidney and beef cell antigen suspensions, which greatly enhance the specificity of the test. Complete absorption of the antibodies by beef cells but not by guinea pig kidney is said to be characteristic of infectious mononucleosis. A heterophil agglutinin titer of 1:1,792 or higher may, for practical purposes, be presumed to be diagnostic of infectious mononucleosis without performance of absorption tests. Absorption of the antibodies at any titer is necessary to differentiate serum sickness antibodies from those of infectious mononucleosis. Under certain special circumstances absorption tests should be employed even in cases in which there are titers of 1:1,792 or higher. In an addendum to this report the author mentions a recent report by Southam and associates, who encountered heterophil antibody titers above 1:56 in 16% of 187 cases of leukemia and other neoplastic diseases, the highest titer being 1:896 in a case of acute leukemia. However, they identified these antibodies as normal Forssman antibodies by means of absorption tests.

American Journal of Obstetrics & Gynecology, St. Louis

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Twenty-Five Year Evaluation of Treatment of Carcinoma of Cervix with Irradiation. L. C. Scheffey, W. J. Thudium, D. M. Farell and others.—p. 233.

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*Specific Hypertensive Disease of Pregnancy: Factors Affecting Infant Mortality. I. Wellen.—p. 271.

Papilloma of Cervix. M. R. Marsh.—p. 281.

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Hepatorenal Syndrome Complicating Pregnancy. W. S. Baker Jr.—p. 309.

*Endoscopy in Gynecology. B. V. MacFadyen, W. A. Reishtein and A. R. Kannapel.—p. 319.

Coitus and Late Pregnancy, Delivery, and Puerperium: Preliminary Report. W. E. Pugh.—p. 333.

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Balanced Mixture for Terminal Anesthesia in Parturient: Preliminary Report. S. M. Shane and W. N. Long.—p. 392.

Residual Carcinoma in Vaginal Cuff After Radical Hysterectomy with Bilateral Pelvic Lymph Node Dissection. J. B. Graham and J. V. Meigs.—p. 402.

Sustained Contractions of Gravid Uterus During Spinal Anesthesia. G. H. Ward, U. E. Anz and A. M. McCarthy.—p. 406.

Repair of Enterocele with Preservation of Vagina. R. I. Hiller.—p. 409.

Proposed Classification for Cases of Cancer of Cervix Treated by Surgery. J. V. Meigs and A. Brunschwig.—p. 413.

Use of Menadione Bisulfite and Ascorbic Acid in Treatment of Nausea and Vomiting of Pregnancy: Preliminary Report. R. L. Merkel.—p. 416.

Hypertensive Disease of Pregnancy.—A hypertensive disease (preeclampsia or eclampsia) was a complication of pregnancy in 1,010 (3.7%) of 27,028 women delivered at Bellevue Hospital during a 15 year period ending May, 1950. The infant mortality in the hypertensive group was 12.4% as compared to 5.2% in the total group. The loss was four times as great in cases of severe hypertension and in mild cases was only slightly greater than that of the nonhypertensive patients. The incidence of eclampsia, premature separation of the placenta, and prematurity was consistently higher in the severely hypertensive patients. These conditions, in turn, contributed to the infant loss. The development of severe preeclampsia was not correlated with the amount of prenatal care. On the other hand, eclampsia ensued twice as often and the infant mortality was much greater in patients who had not had adequate care. The infant loss was affected by the time of onset and duration of the hypertensive state, the mortality being greatest in the earlier weeks of gestation and with continuance of the condition. The incidence of eclampsia was highest in nonclinic patients, those with severe preeclampsia, and before the 34th week of pregnancy. The infant loss was three and a half times greater than in the preeclamptic group. This took place chiefly in the patients with antepartum convulsions. When eclampsia developed in patients who had been treated for preeclampsia, it was usually a mild intra or postpartum type. The majority of the patients with premature separation of the placenta had not attended the prenatal clinic. The incidence of this complication in mild cases was identical with that among the nonhypertensive patients. It was four and a half times more prevalent in the severe cases. Almost all of the infants were lost. Cesarean section was performed approximately two and a half times as often in patients with hypertensive disease as in the entire series. The increased surgical interventions were largely accounted for by those done for threatening eclampsia and premature separation of the placenta. The number of forceps deliveries was double that done in the nonhypertensive patients. The incidence of prematurity in mild cases was identical with that in nonhypertensive cases, but it was almost three times more prevalent in the patients with severe hypertension. Three-fourths of the neonatal deaths of the premature infants occurred within the first 48 hours of life. The greater the weight of premature infants the greater the chances for survival.

Endoscopy in Gynecology.—Endoscopy was employed in an effort to establish the correct diagnosis in 191 patients whose symptoms and pelvic findings did not unequivocally warrant abdominal surgery. Of 167 patients (87%) in whom the diagnosis was established by this method, the culdoscope was used in 141 and the peritoneoscope in 26. In the remaining 24 patients (13%) failure to enter the peritoneal cavity or inadequate visualization made positive diagnosis impossible. The method proved particularly valuable in the rapid identification of ectopic pregnancy, chronic bilateral salpingitis, endometriosis, adnexal neoplasms, and abnormal pelvic conditions associated with anxiety states. It would appear to be of value in the determination of factors contributing to infertility. Serious complications were associated with culdoscopy in 11 patients (6.8%). Two rectal perforations occurred early in this series. These, when they occur, are retroperitoneal and should be treated by observation with or without antibiotic medication. Pelvic peritonitis occurred in six patients, and its incidence may have been increased by breaks in technique associated with prolonged viewing by several examiners. There was no mortality. The authors believe that the complications were not sufficient in number or extent to preclude the use of the instrument in the manner and under the conditions described. There were no complications following peritoneoscopy. Endoscopy, in the authors' experience, is of much value, and can be employed with such ease as to deserve more widespread use among gynecologists.

American Journal of Ophthalmology, Chicago

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American Journal of Physical Medicine, Baltimore

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*Studies on Treatment of Fresh Vegetables Contaminated with Cysts of Endamoeba Histolytica. I. Acetic Acid. M. F. Jones.—p. 576.
Diasone, Avlosulfon and Sulphetrone as Therapeutic Agents in Experimental Toxoplasmosis. J. B. Cross.—p. 593.
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Treatment of Ascariasis in Children with Hetrazan® Syrup. M. T. Hoekenga.—p. 688.
Report of Case of Human Nasal Myiasis by Greenbottle Fly, Phaenicia Sericata, in San Bernardino County, California. R. E. Ryckman and B. W. Halstead.—p. 711.

Acetic Acid Solution for Vegetables Contaminated with Endomoeba Histolytica.—Acetic acid, long recognized as having bactericidal and bacteriostatic properties, was first noted to have cysticidal efficacy by Beaver and Deschamps in 1949. They recommended that vegetables be immersed for 15 minutes in a 5% solution for the destruction of E. histolytica cysts. This paper describes studies on the possibility of using less concentrated solutions of acid and shorter immersion periods by increasing the temperature during treatment. The cysticidal efficacy of acetic acid was studied at temperatures between 25 and 50 C and at concentrations of 1%, 2.5%, and 5%. No cysts survived in suspensions exposed for 15 minutes to 5% acid at 30 C and for 5 minutes to 2.5% acid at 45 C. One vinegar tested gave similar results at the higher temperatures. Likewise few viable cysts remained on previously contaminated lettuce in two of three tests after 15 minute exposure to 5% acid at 30 C and in one of five tests after exposure for 5 minutes to 2.5% acid at 45 C. The treatment removed the greater part of cyst contamination from lettuce, but the usefulness of the method is limited by the fact that some vegetables, especially leafy greens, deteriorated after a few hours storage and should be used as soon as possible after treatment.

American Review of Tuberculosis, New York

66:1-124 (July) 1952

*Incidence of Pulmonary Tuberculosis in Group Continuously Observed and Periodically Re-Examined. F. D. Gomez and A. A. Piaggio.—p. 1.
Incidence of Pulmonary Tuberculosis Among Employees of Tuberculosis Hospitals. E. X. Mikol, R. Horton, N. S. Lincoln and A. M. Stokes. —p. 16.
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Bacteriologic Study of Resected Tuberculous Lesions. E. M. Medlar, S. Bernstein and D. M. Steward.—p. 36.
Study of Tubercle Bacillus in Resected Pulmonary Lesions. F. Beck and D. Yegian.—p. 44.
Effect of Artificial Pneumoperitoneum on Ballistocardiograph of Patients with Chronic Pulmonary Disease. A. Caccese.—p. 52.
Hemagglutination Reaction Following BCG Vaccination in Human Subjects. R. R. Haley, W. N. Davey, J. Adcock and C. R. Owen.—p. 58.
Occurrence of Tubercle Bacilli Resistant to Streptomycin in Children with Tuberculosis. V. N. Wilking, R. L. Nemir, E. M. Lincoln and J. D. Martin.—p. 63.

Pulmonary Tuberculosis in a Constantly Observed Group.—Five routine roentgenographic examinations were carried out in 1940 and then during the four consecutive years of 1947 to 1950 on a total of 7,650 persons employed in the electric and telephone plants of Uruguay, including office, shop and outdoor workers. The mass examinations were supplemented by continuous medical supervision. Of the 7,650 persons, 744 who were examined in 1940 were subjected to tuberculin tests, and 726 (97.6%) of the latter group had positive results from the tests. Because of this high positive tuberculin index, the study of tuberculin sensitivity was abandoned. Active tuberculous lesions were found in 82 (1.07%) of the 7,650 persons examined. The number of person-years of observation was 15,069. Of 5,509 persons examined roentgenographically in 1947, 5,234 were observed for at least one year, of whom 4,153 (79.2%) remained under observation in 1950. The incidence of latent tuberculosis detected roentgenographically at the second of the four consecutive examinations was 0.15%, at the third examination one year later 0.26%, and at the fourth examination at the end of the third year 0.04%. A total of 24 persons had latent tuberculous processes. The majority of such lesions were observed in persons carrying the residues of previous cicatrized lesions. During the period of 1947-1950, 17 cases (0.28%) of manifest or symptomatic tuberculosis appeared between successive routine examinations. All of these developed between the first and second examinations of persons in the group studied. No new cases of tuberculosis with clinically manifest onset were detected at the third and fourth examinations. The incidence of manifest and latent tuberculous cases combined was 0.43% at the second examination, 0.26% at the third examination, and 0.04% at the fourth examination. The latent forms had, in general, a mild course and showed a tendency to regression. The clinically manifest and symptomatic lesions frequently showed a tendency to progression, resulting in death in 21.4% of the cases. From these results it was concluded that latent tuberculosis detected by roentgenographic examination of apparently healthy persons rarely represents the onset of progressive phthisis in adults. It is usually a benign form of pulmonary tuberculosis in persons with a good inherent resistance.

Annals of Internal Medicine, Lancaster, Pa.

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*Indications and Contraindications for Treatment of Thyroid Cancer with Radioactive Iodine. W. H. Beierwaltes.—p. 23.
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Pneumococcal Meningitis in Adults. J. S. Feibush, E. J. Murphy and A. Lubart.—p. 65.
*Headaches and Facial Pains in Cervical Discopathy. E. Neuwirth.—p. 75.
Some Observations Upon Middlebrook-Dubos Hemagglutination Test in Man and Animals. P. Bunn, B. Drobeck, J. Gino and C. Adair.—p. 84.
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Treatment of Central Nervous System Cryptococcosis: Review and Report of Four Cases Treated with Actidione. C. A. Carton.—p. 123.
Heart Disease in University Students. A. F. Goggio.—p. 135.
Treatment of Nontuberculous Bacterial Pleural Space Infections with Aureomycin: Results of Treatment in Nine Patients; Concentration of Aureomycin in Pleural and Pericardial Fluid in Seven Patients. C. K. Wolfe Jr., M. H. Lepper, E. R. Caldwell Jr. and others.—p. 164.

Radioactive Iodine in Cancer of Thyroid.—A review of the literature of the first 10 years of the use of radioactive iodine (I^{131}) in the treatment of cancer of the thyroid and observations on 24 patients treated with radioactive iodine at the author's clinic revealed information of value in the selection of patients for this treatment. The patient should first have a total thyroidectomy, with radical neck dissection when indicated. If the surgeon is unable to eradicate all palpable or visible neoplasm, the x-ray therapist should attempt to obtain cure or palliation. When these forms of therapy are deemed no longer helpful and if biopsy demonstrates follicular and alveolar or papillary neoplasm in primary tumor and metastases, I^{131} therapy should be used. Another indication that the response to radioactive iodine will be good is ability of the thyroid cancer to concentrate I^{131} as shown by (1) a positive autoradiograph; (2) a high uptake in the metastasis demonstrated by external gamma counting; (3) excretion of less than 30% of an administered dose of I^{131} in the urine in the first 48 to 96 hours, or (4) a low level of I^{131} in the circulating blood following administration of a tracer dose. A more nearly complete response can be promoted by increasing the thyroid-stimulating hormone effect on metastases through total thyroidectomy, thiouracil administration, and exogenous administration of thyroid-stimulating hormone. Temporary contraindications to I^{131} therapy include myxedema, administration of desiccated thyroid or iodides, and the presence of hypoplasia of bone marrow.

Headaches and Facial Pains in Lesions of Cervical Disks.—Headaches, facial pains, anterior chest pains, and dysesthesias have been observed in patients with disorders of the cervical spine. When the well-known root symptoms are also present, the site of the pathological process producing these phenomena is not difficult to determine, but, when they are absent, the diagnosis becomes difficult. Some patients, despairing of relief, become neurotic and resort to narcotic drugs. Acute attacks of pain may be provoked by emotional upsets, cold or heat, humidity, sudden noise, or other factors, but generally not by stimulating a circumscribed area, as in classic tic douloureux. Frequently the area behind the ear, the mastoid region, and the side of the neck are painful. One or both ears may feel "plugged"; there may also be tinnitus, clicking noises, or even vertigo. The pains are often erroneously assumed to originate in the structures where they are felt, such as in the eyes, ears, tongue, gums, and lips. The author explains on the basis of the anatomic topography why root involvement in cervical disk lesions may cause preganglionic sympathetic irritation. This may produce vasomotor disturbances in certain arterial areas, with resulting headaches and craniofacial pains. Stretching of the cervical spine by means of traction is the most effective therapeutic procedure. Vertebral traction widens the intervertebral foramina and spaces, stretches the ligaments and joint capsules of the cervical spine, relieves muscle spasm, returns displaced disks and vertebrae to their original site, and facilitates reduction of subluxated joints. Pressure is removed from nerve roots, blood vessels and lymphatics, and pain is relieved with restoration of normal circulation. The author employed stretching in 47 patients, traction being applied by headsling to the cervical spine in a total of 742 sessions. All but seven of the patients were either completely or partially relieved. The author feels that in all cases of headache or craniofacial pain of obscure origin, the cervical spine should be examined. It should be borne in mind, however, that absence of roentgenologic as well as myelographic evidence does not necessarily rule out cervical disk disease.

Annals of Western Medicine & Surgery, Los Angeles

6:481-522 (Aug.) 1952

Rational Treatment of Viral Diseases of Skin. G. D. Baldridge and T. H. Sternberg.—p. 481.
Allergic Rhinitis: Tocopherol Therapy. B. G. Krohn and F. M. Pottenger Jr.—p. 484.
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Pressor Drugs in Treatment of Supraventricular Tachycardia. S. R. Elek, J. C. Bernstein and G. C. Griffith.—p. 497.
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Cancer, Philadelphia

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Significance of Heterologous Transplantability of Human Cancer. H. S. N. Greene.—p. 24.
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*Analysis of 100 Cases of Squamous-Cell Carcinoma of Esophagus. I. With Special Reference to Delay Periods and Delay Factors in Diagnosis and Therapy, Contrasting State and City and County Institutions. K. A. Merendino and V. H. Mark.—p. 52.
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*Prophylaxis of Postmammectomy Lymphedema by Use of Gelfoam Laminated Rolls: Preliminary Report, with Review of Theories on Etiology of Elephantiasis Chirurgica and Summary of Previous Operations for Its Control. N. Treves.—p. 73.
Ewing's Sarcoma. L. J. McCormack, M. B. Docherty and R. K. Ghormley.—p. 85.
Alveolar Soft-Part Sarcomas; Structurally Characteristic Tumors of Uncertain Histogenesis. W. M. Christopherson, F. W. Foote Jr. and F. W. Stewart.—p. 100.
Malignant Granular-Cell Myoblastoma. R. C. Ross, T. R. Miller and F. W. Foote Jr.—p. 112.
Content of and Incorporation of P^{32} Into Nucleic Acids of Liver, Spleen, and Lymphosarcomatous Tissue of Man. K. M. Stevens.—p. 122.
Giant-Follicle Lymphoma and Follicular Hyperplasia of Lymph Nodes: Comparison of Follicle Size and Other Measurements. A. G. Foraker.—p. 126.
Differentiation of Plasmocytic Responses from Myelomatous Diseases on Basis of Bone-Marrow Findings. R. S. Fadem.—p. 128.

Squamous Cell Carcinoma of the Esophagus.—Until quite recently, carcinoma of the esophagus was considered a hopeless disease and treatment was largely palliative. Now, when extirpation of portions of the esophagus with restoration of gastrointestinal continuity is the rule rather than the exception, the prognosis has changed radically and early diagnosis is essential. This paper analyzes 100 cases of squamous cell carcinoma of the esophagus, with particular reference to factors in delay in the diagnosis and therapy of this lesion. The summary emphazies the following points: Any degree of dysphagia must be considered as indicative of carcinoma of the esophagus until proved otherwise. Patients with this complaint must be subjected to roentgen visualization of the esophagus and stomach followed by esophagscopy. Although dysphagia develops comparatively late in the course of the disease, for practical and diagnostic purposes it is the first symptom. Education as to the seriousness of this symptom must be directed at both the general public and the practicing physician. With general awareness of the implication of dysphagia, it is expected that the delay period from the onset of symptoms until the diagnosis is established can be reduced in most instances to two months. In the indigent population of the metropolitan area studied, the patient was responsible for a delay of ninety days after esophageal symp-

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toms appeared. An average delay of 35 days was observed in patients in state institutions before they consulted a private physician for esophageal symptoms. The interposition of a private practitioner between the state-institution patient and the hospital in which he received definitive treatment resulted in an average delay of 108 days. Symptomatic therapy, or procrastination in any other form, is to be condemned in the presence of dysphagia. Starvation and dehydration as such do not necessarily indicate either inoperability or incurability.

Gelfoam® Rolls in Prophylaxis of Postmammectomy Lymphedema.—Treves discusses the causes of the swollen arm after radical mastectomy, the various operations that have been devised for it, and the reasons why these operations have largely failed. Lymphangiosarcoma, more lethal even than breast cancer, may develop as a complication of the swollen arm. Therefore, the primary problem is the prevention rather than treatment, especially since, once established, the swelling is often permanent and not readily ameliorated. In 1949 the author began to use absorbable gelatin sponge-U.S.P. (gelfoam®) following the completion of the routine radical mastectomy. After hemostasis and the insertion of drains, four strips of the gelatin sponge were placed superior, anterior, and inferior to the exposed nerve, artery and vein. The strips extended for about 12 cm. from the sternoclavicular ligament and chest wall mesially to an area in the arm opposite the insertion of the teres major muscle and adjacent to the fossa where the profunda branches of the lymphatics had been avulsed by the axillary dissection. This seemed to provide a means for preventing swelling of the arm by (1) splinting the axillary vein to prevent angulation, (2) partially obliterating the dead space in the extreme apex of the axilla, (3) providing an absorbable bridge across which the deep lymphatics could grow, and (4) ensuring that the bridge by which they grow would not only serve as a splint but also prevent cicatrization of the axilla. The gelatin sponge was used in 84 cases, and in 73 there was no swelling. The other 11 patients had some swelling, but massive edema never resulted. Thus the immediate results were most satisfactory, but two years may be too short a period for final evaluation.

Circulation, New York

6:161-320 (Aug.) 1952

Studies on Spread of Excitation Through Ventricular Myocardium. II. Ventricular Septum. H. B. Burchell, H. E. Essex and R. D. Pruitt.—p. 161.
Effects of Cardiac Glycosides Upon Electrical Activity of Single Ventricular Fibers of Frog Heart, and Their Relation to Digitalis Effect of Electrocardiogram. L. A. Woodbury and H. H. Hecht.—p. 172.
Studies of Electrocardiographic Changes During Exercise (Modified Double Two-Step Test). P. N. G. Yu and A. Sofer.—p. 183.
Transient Ventricular Fibrillation. IV. Effects of Procaine Amide on Patients with Transient Ventricular Fibrillation During Established Auriculoventricular Dissociation. S. P. Schwartz, L. Hallinger and A. Imperialli.—p. 193.
Distribution of Cardiac Potentials Around Chest in 103 Normal Men. E. Simonson.—p. 201.
Clinical Studies on Veratrum Alkaloids. II. Dose-Response Relations of Protoveratrine in Hypertension. E. Meilman and O. Krayer.—p. 212.
*Lewis A. Conner Memorial Lecture. Heart and Thyroid: with Particular Reference to I^{131} Treatment of Heart Disease. H. L. Blumgart and A. S. Freedberg.—p. 222.
Action of Norepinephrine, Epinephrine and Isopropyl Norepinephrine on Rhythmic Function of Heart. M. H. Nathanson and H. Miller.—p. 238.
Hypersensitivity to Mercuhydrin. J. F. Whitman and W. L. Proudfit.—p. 245.
Paradoxic Action of Amyl Nitrite in Coronary Patients. S. Contro, O. M. Haring and W. Goldstein.—p. 250.
*Acceleration of Blood Coagulation in Acute Myocardial Infarction as Demonstrated by Heparin Clotting Time; Effect of Dicumarol Therapy. R. L. Rosenthal and J. C. Weaver.—p. 257.
Further Studies on Effect of Arteriovenous Fistulas and Elevations of Sinus Pressure on Mortality Rates Following Acute Coronary Occlusions. G. Smith, J. Demming, M. Eleff and R. W. Eckstein.—p. 262.
*Further Observations on Penicillin-Treated Cardiovascular Syphilis. J. Edeiken, W. T. Ford, M. S. Falk and J. H. Stokes.—p. 267.
Inhibition of Coronary Atherosclerosis by Estrogens in Cholesterol-Fed Chicks. R. Pick, J. Stamler, S. Rodbard and L. N. Katz.—p. 276.
Blood Flow Through Calf of Leg During Acute Occlusion of Femoral Artery and Vein. J. T. Shepherd.—p. 281.

Radioactive Iodine Treatment of Heart Disease.—The effects on the heart of hypothyroidism induced by radioactive iodine in 39 euthyroid patients, 26 with intractable advanced angina pectoris and 13 with congestive heart failure, are described. Only patients were treated who were seriously incapacitated despite all conventional forms of therapy for many months or years. Results indicated that persistent hypothyroidism could be induced by one or more appropriate doses of radioactive iodine. The average total dose administered to each patient with angina pectoris was 78 mc., while the average dose given to the patients with congestive heart failure was 61 mc. No radiation sickness and no toxic effects on the blood, kidneys, or parathyroids were observed. Mild or moderate transitory thyroiditis occurred in approximately one-half of the patients. In the patients with angina pectoris the average duration of the disease before treatment was 5.6 years; follow-up after treatment varied from one to three years, with an average of two years. One-third of these patients obtained excellent improvement; another third obtained less but still worth-while improvement. In the remaining one-third the results were not worth while. In the patients with congestive heart failure the average duration of the disease was 5 years and the average follow-up after treatment was 20 months. Of these 13 patients, 4 obtained striking improvement and 2 worth-while improvement, while there was little improvement in the remaining 7. The results of radioactive iodine treatment by other workers in a group of 28 euthyroid patients with angina pectoris and in a second group of 95 patients with angina pectoris and congestive heart failure confirmed those reported by the authors.

Blood Coagulation in Myocardial Infarction.—A study of blood coagulation was made on 19 patients with acute myocardial infarction and on 14 patients with cardiovascular disease but no evidence of acute myocardial infarction. For this study the authors used an in vitro modification of the heparin tolerance test, called the heparin clotting time, in which 1 cc. of the patient's blood is added to and mixed with 4 μg. of heparin dissolved in 0.1 cc. of 0.85% isotonic sodium chloride solution. On over 100 control persons the normal range of the heparin clotting time has been standardized between 20 and 35 minutes, with an average value of 27 minutes. An accelerated coagulability was detected by a rapid heparin clotting time of less than 20 minutes in 14 (74%) of the 19 patients with myocardial infarction. Only 1 (7%) of the 14 patients with cardiovascular disease but without acute myocardial infarction had such a rapid heparin clotting time. The clotting times and platelet counts were normal in both groups of patients. The mechanism of the increased coagulability as demonstrated by a decreased sensitivity to the anticoagulant effect of heparin is not known. Whatever its significance and mechanism, it appears that the increased coagulability of the blood in acute myocardial infarction portends a threat of thromboembolization and is further indication of the importance of anticoagulant therapy to decrease the clotting tendency. Serial coagulation studies during treatment with bishydroxycoumarin (dicumarol®) in one of the patients with acute myocardial infarction showed that the heparin clotting time became prolonged to about 28 to 35 minutes as compared with 15 to 25 minutes before treatment. Because the heparin clotting time provides a sensitive measure of over-all coagulability before therapy, it may be a valuable test in establishing therapeutic levels and in minimizing the risk of hemorrhage during anticoagulant therapy. Whether the heparin clotting time follows the prothrombin activity or other clotting indexes closely enough to be the sole guide for treatment with the coumarin derivatives and phenylindandione must be determined by further investigation and experience.

Penicillin-Treated Cardiovascular Syphilis.—Sodium penicillin in aqueous solution was administered intramuscularly to 111 patients with cardiovascular syphilis. Of these patients, 13 were in congestive heart failure, 8 had angina pectoris, and 3 had a history of coronary occlusion. In some of the earlier cases the initial doses of the antibiotic were small, 500 to 5,000 units every three hours, because of fear that the therapeutic shock might close off a stenosed coronary orifice, or that the scars of healing might give rise to mechanical difficulties. Larger doses were given in all the later cases consisting of 40,000 to 80,000 units every two or three hours until a total of 4,800,000 to 9,600,000 units were given; this course was repeated once if indicated. There was never evidence of either therapeutic shock or paradox, although a few patients had a slight rise of tempera-

ture. It was difficult to measure the favorable effects of penicillin in these cases because there were no controls. Moreover, in addition to penicillin, other recognized methods of treatment were used in those patients with signs or symptoms of congestive heart failure. However, beneficial effects of penicillin therapy were suggested by the following results: Some patients with nocturnal dyspnea and symptoms of congestive heart failure improved to a degree not expected from therapy other than penicillin. This also occurred in a few patients, with anginal pain. In a few patients, a soft aortic diastolic murmur seemed to disappear or a loud murmur became softer. The subjective improvement experienced by most patients affirms the efficacy of penicillin. The main point stressed by the authors is that it does not appear to be dangerous to treat patients with cardiovascular syphilis with penicillin. Angina pectoris and congestive heart failure do not contraindicate the use of penicillin in cardiovascular syphilis.

Hawaii Medical Journal, Honolulu

11:353-406 (July-Aug.) 1952

Pathology of Ground Substance of Mesenchyme. W. Boyd.—p. 353.
Indispensability of Stress. H. L. Arnold Jr.—p. 358.
Potassium Bromate Poisoning Incident to Ingestion of "Cold Wave" Neutralizer. W. M. Edwards and C. L. Leedham.—p. 362.

Illinois Medical Journal, Chicago

102:97-160 (Aug.) 1952

Fractures: 50 Year Review of Teaching and Treatment. K. Speed.—p. 114.
Examination and Interpretation of Knee Injuries. J. J. Callahan and J. E. Segraves.—p. 118.
Heart Failure with Terminal Cerebral Episode. H. Popper and R. J. Fink.—p. 121.
Pituitary Myxedema. R. C. Levy and G. H. Becker.—p. 126.
Primary Idiopathic Infarction of Greater Omentum. W. H. Cave.—p. 130.

Journal Clin. Endocrin. & Metab., Springfield, Ill.

12:985-1116 (Aug.) 1952

*Effects of Chorionic Gonadotropin in Adult Men: Increased Estrogen and 17-Ketosteroid Excretion, Gynecomastia, Leydig Cell Stimulation and Seminiferous Tubule Damage. W. O. Maddock and W. O. Nelson.—p. 985.
Further Studies on Treatment of Congenital Adrenal Hyperplasia with Cortisone: III. Control of Hypertension with Cortisone with Discussion of Variations in Type of Congenital Adrenal Hyperplasia and Report of Case with Probable Defect of Carbohydrate-Regulating Hormones. L. Wilkins, J. F. Crigler Jr., S. H. Silverman and others.—p. 1015.
Clinical Laboratory Procedure for Study of General Adaptation Syndrome. G. L. Rohdenburg and P. J. Manheims.—p. 1031.
Modification of Response to Prolonged ACTH Therapy. N. H. Brown and R. B. Greenblatt.—p. 1040.
Effect of Surgical Procedures on Urinary Gonadotropin Excretion. A. R. Schval, I. Weiner and L. J. Soffer.—p. 1053.
Attempt to Assess Magnitude of Endogenous Androgen Production in a Case of Adrenogenital Syndrome. A. C. Carter and E. Shorr.—p. 1059.
Balance Study of Methyltestosterone in a Patient with Hypogonadism. A. Querido, A. Kassenaar, M. A. M. Schuurs and H. C. Seldenrath.—p. 1077.
Effects of Sodium Iodide, 6-Propylthiouracil, and 1-Methyl-2-Mercaptoimidazole During Radioiodine Therapy of Hyperthyroidism. H. B. Hamilton and S. C. Werner.—p. 1083.
Effect of Glucose on Circulating Eosinophils. S. Artunkal and S. Kayahan.—p. 1095.

Effect of Chorionic Gonadotropin in Adult Men.—Chorionic gonadotropin is known to stimulate growth and endocrine function of the immature human testis. When administered to cryptorchid boys, it can produce enlargement and descent of the testis and, with sufficient amounts, sexual development. In hypogonadotropic eunuchoids, it produces differentiation and growth of Leydig cells and secretion of androgen. To determine the effects of chorionic gonadotropin on the structure and function of the adult human testis, it was administered to five men, four of whom complained of decreased potency and one of sterility. None of the patients were completely impotent and testicular biopsy specimens obtained before therapy revealed the presence of Leydig cells and some degree of spermatogenesis. Urinary gonadotropin titers before therapy were within normal limits in three patients and moderately elevated in two. Each patient received 5,000 units of chorionic gonadotropin intramuscularly three times weekly for 46 to 65 days. The hormone was also administered to three men without functioning testes. One had been castrated in an accident 34 days prior to therapy. The other two, aged 54 and 58 respectively, presented the clinical picture of hypopituitarism of 10 and 20 years' duration. During gonadotropin administration urinary estrogen excretion increased to from 5 to 16 times pretreatment levels in each of the five men with functioning testes. Urinary 17-ketosteroid excretion increased to about twice pretreatment levels, but the changes were variable. Testicular biopsy specimens obtained at the conclusion of therapy from three patients showed an increase in Leydig cells and histochemical changes indicative of enhanced secretory activity, while seminiferous tubules were decreased in size and showed basement membrane hyalinization, peritubular fibrosis, cessation of spermatogenesis, and necrosis and sloughing of germinal cells. The number of sperm in the seminal fluid decreased to almost zero. In two patients gynecomastia developed. Estrogen excretion did not increase when chorionic gonadotropin was administered to three men who lacked functioning testes, but did increase when the hormone was administered to a man with Addison's disease. The authors concluded that the Leydig cells rather than Sertoli or germinal cells are the source of the estrogen elaborated by the human testis. Adult, functioning Leydig cells respond to chorionic gonadotropin by secreting increased amounts of both androgen and estrogen. Estrogen excretion is a more sensitive and reliable indicator of the response of Leydig cells to chorionic gonadotropin than 17-ketosteroid excretion. The seminiferous tuble damage (and concomitant decrease in the number of sperm in the seminal fluid) that occurs during the administration of chorionic gonadotropin is probably due to suppression of pituitary secretion.

Journal of Infectious Diseases, Chicago

91:1-104 (July-Aug.) 1952

*Salmonellosis in Dogs: I. Bacteriological, Epidemiological and Clinical Considerations. M. M. Galton, J. E. Scatterday and A. V. Hardy.—p. 1.
Id.: II. Prevalence and Distribution in Greyhounds in Florida. C. I. Stucker, M. M. Galton, J. Cowdery and A. V. Hardy.—p. 6.
Id.: III. Prevalence in Dogs in Veterinary Hospitals, Pounds and Boarding Kennels. H. B. McElrath Jr., M. M. Galton and A. V. Hardy.—p. 12.
Id.: IV. Prevalence in Normal Dogs and Their Contacts. D. C. Mackel, M. M. Galton, H. Gravy and A. V. Hardy.—p. 15.
Bactericidal Action of Dog Blood Against Brucella Suis. J. Victor, E. B. Wells, J. Clements and A. D. Pollack.—p. 19.
Effects of X Irradiation on Naturally Occurring Endemic Infection. V. P. Bond, I. L. Shechmeister, M. N. Swift and M. C. Fishler.—p. 26.
Cultivation of Exoerythrocytic Forms of Plasmodium Gallinaceum in Tissue Culture. I. N. Dubin.—p. 33.
Studies on Enhancement of Bacterial Infection by Hog Gastric Mucin. D. Gale and S. S. Elberg.—p. 50.
Cytochemical Evidence for Nature of Herpes Simplex Inclusion Bodies. M. Wolman and A. Behar.—p. 63.
Cytochemical Study of Nature of Negri Bodies. M. Wolman and A. Behar.—p. 69.
Studies on Toxicity of Typhus Rickettsiae. I. Susceptibility of White Rat, with Note on Pathologic Changes. F. A. Neva and J. C. Snyder.—p. 72.
*In Vitro and In Vivo Action of Aureomycin on Vaccinia Virus in Chick Embryo and in Rabbit. V. J. Cabasso, I. F. Moore and H. R. Cox.—p. 79.
Studies on Immunogenic Properties of Bacterium Tularense Variants. H. T. Eigelsbach, W. Braun and R. D. Herring.—p. 86.
Capsule Types of Klebsiella. P. R. Edwards and M. A. Fife.—p. 92.

Salmonellosis in Dogs.—Most Salmonella infections are primary infections of animals or birds that may be transmitted to man. There are numerous reports in the literature referring to the epidemiological significance of infection in domestic fowl and swine and in wild rodents; in contrast, there have been relatively few studies of the occurrence of these infections in domestic pets. Galton and associates describe procedures used in the isolation of Salmonella organisms from dogs. Of 8,157 rectal swabs from dogs, 2,252 (27.6%) were positive for Salmonella. A total of 53 serologic types, including three new types, were encountered. Salmonella types that were isolated frequently from dogs were also encountered frequently in man. Evidence did not permit conclusions as to the significance of Salmonella infections in dogs either as a source of spread to man or as a cause of disease in dogs.

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Action of Aureomycin on Vaccinia Virus.—Most workers found penicillin to have no effect on the vaccinia virus in man, animals, tissue cultures, or eggs. Streptomycin likewise proved of no value against vaccinia virus. Recently Perry and Martineau treated a child who had eczema vaccinatum with aureomycin and reported the prompt recovery of the patient. They thought that aureomycin acted either through indirect control of secondary bacterial infection or through some specific antibiotic action on the virus. Conversely, other investigators failed to demonstrate in the infected chick embryo any inhibiting activity against vaccinia virus by aureomycin or terramycin, and found no indication that smallpox virus was affected by aureomycin, terramycin, or chloramphenicol in human cases of the disease. The object of this paper is to present data on the in vitro and in vivo action of aureomycin on vaccinia virus, using fertile hens' eggs and rabbits as experimental hosts. Aureomycin was found to have no appreciable action on the development of vaccinia virus. Some inhibiting action was observed in the chick embryo when aureomycin and virus were mixed in vitro before inoculation. However, this inhibition was apparently caused by an unknown, nonspecific, heat-stable factor.

Journal of International College of Surgeons, Chicago

18:141-264 (Aug.) 1952

Anastomosis of Rectum Without Suture: Preliminary Report. I. Sauer and H. E. Bacon.—p. 141.
Renal Metastasis in Carcinoma of Pancreas. L. E. McCrea and S. Keesal.—p. 151.
Treatment of Bursitis by Local Injection of Hydrocortisone Acetate. E. J. Orbach.—p. 159.
Therapeutic Pituitary Inhibition by Steroids: Treatment of Exophthalmos. M. V. Okie, W. J. Daley and W. F. White.—p. 164.
Surgical Correction of Prognathism. S. K. Wynn.—p. 172.
Cosmetic Surgery of Nose in Israel E. Wodak.—p. 179.
Partial Resection of Anterior Thoracic Wall with Skin Flap Reconstruction. J. B. Vianna.—p. 193.
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Phthalyl Sulfathiazole in Treatment of Experimental Peritonitis in Rats. J. Grieve.—p. 210.
Intestinal Obstruction Due to Gallstone Impaction. G. N. Thomas, A. G. Boreadis and A. Shapiro.—p. 216.
Surgical Treatment of Undescended Testis. G. Meloni.—p. 223.
"Gastric Cripple" After Total Gastric Resection. P. S. Kline.—p. 226.

Journal of Nutrition, Philadelphia

47:307-468 (July) 1952. **Partial Index**

Aspartic Acid, Glutamic Acid, Proline and Tyrosine Content of Meat. A. M. Violante, R. J. Sirny and C. A. Elvehjem.—p. 307.
Occurrence of Calcinosis Syndrome in Cotton Rat. M. A. Constant and P. H. Phillips.—p. 317.
Daily Determination of Plasma, Serum and White Cell-Platelet Ascorbic Acid in Relationship to Excretion of Ascorbic and Homogentisic Acids by Adults Maintained on Controlled Diet. B. L. Davey, M. Wu and C. A. Storvick.—p. 341.
Effect of Testosterone Propionate on Niacin Metabolism in Rats. W. T. Beher, E. M. Crigger and O. H. Gaebler.—p. 353.
Importance of Choline in Prevention of Nutritional Edema in Rats Fed Low-Protein Diets. H. D. Alexander and R. W. Engel.—p. 361.
Study of Lysine Deficiency and Nitrogen Balance Under AD Libitum and Force-Feeding Conditions. J. W. Bothwell and J. N. Williams Jr.—p. 375.
*Influence of Ingested Mineral Oil Upon Development of Essential Fatty Acid Deficiency in Rat. E. K. Bacon, S. Lassen, S. M. Greenberg and others.—p. 383.
Nutritive Value of Lard Affected by Porportion of Fat in Diet. R. Hoagland, G. G. Snider and C. E. Swift.—p. 399.
Amount of Nitrogen Retained by 6 Young Women on Intake of Approximately 70 GM of Protein a Day. F. A. Johnston and T. J. McMillan.—p. 425.

Mineral Oil and Fatty Acid Deficiency.—Since the effect of mineral oil on the absorption of some fat-soluble vitamins seems well established, Bacon and associates decided to investigate whether or not mineral oil also interferes with the absorption of fatty acids in rats. If so, it is conceivable that mineral oil could be used to accelerate the development of an essential fatty acid deficiency. Such a procedure would be desirable in animal experiments in view of the long depletion period required at present. Mineral oil, at levels of 2, 3.5, 5, 7.5 and 10%, was added to a fat-low diet that under ordinary conditions would result in a fatty acid deficiency and cessation of growth in 11 to 12 weeks. Below 5%, mineral oil did not result in cessation of growth earlier than 11 to 12 weeks, but the higher levels of mineral oil resulted in growth failure after a shorter period (two to three weeks on 10% mineral oil). In addition to earlier cessation of growth, other symptoms of fatty acid deficiency appeared, including increased water consumption. The symptoms could be prevented by the inclusion of 50 mg. of linoleate per day. The fecal excretion of total fatty acids was found to be increased by the presence of mineral oil in the diet, and the iodine number of the fecal fatty acids was increased by mineral oil. A purely solvent action of mineral oil apparently cannot be accepted, however, since the deficiency symptoms were prevented by either oral or intraperitoneal administration of linoleate. In addition to typical symptoms of essential fatty acid deficiency, the animals on diets containing 5% or more mineral oil developed symptoms suggestive of a biotin deficiency.

Michigan State Medical Society Journal, Lansing

51:793-936 (July) 1952

*Disseminated Coccidioidomycosis. H. A. Chapnick.—p. 833.
Annular Pancreas: Report of Case. E. G. Bovill and W. J. Bailey.—p. 837.
The New Versus the Old in Treatment of Syphilis. S. W. Becker.—p. 843.
Constitutional Anomalies in Recalcitrant Trichophyton Purpureum Infections. S. Rothman.—p. 849.
Hypospadias. A. I. Dodson and W. J. Frohbose.—p. 852.
Emotional Factors in a University Setting. B. B. Stamell.—p. 857.
Differentiation of Dyspnea Caused by Cardiac Disease from Dyspnea Associated with Pulmonary Emphysema. R. V. Ebert.—p. 860.
Neurodermatitis (Atopic Eczema): Concept and Functional Aspects. S. Rothman.—p. 862.
Observations of Efficacy of Chloramphenicol (Chloromycetin) and ACTH in Treatment of Typhoid Fever in Children: Report of Two Cases. I. F. Burton and M. McDermott.—p. 865.
Use of Anti-Hemophilic Globulin in Obstetrics and Gynecology. F. W. Tamblyn.—p. 869.
Why Michigan's Basic Science Law Should Be Repealed. F. L. Troost.—p. 871.

Disseminated Coccidioidomycosis.—A respiratory infection associated occasionally with erythema nodosum has been known for many years as "valley fever," "Joaquin fever" and "California fever." In 1937 the relationship of this respiratory infection to coccidioidal granuloma was clarified. It had been thought until then that coccidioidosis, by which term only the disseminated or granulomatous type was meant, was invariably fatal. Subsequently, it was found that the majority of residents in endemic regions are skin-sensitive to coccidioidin. Only a few of the relatively large number of patients having this "valley fever" have pulmonary lesions, consisting of cavitation, pneumonitis, mediastinal widening and pleural effusion, and most of these do well. The disseminated form is comparatively rare; it has been estimated that in only one out of 500 cases of coccidioidomycosis will the disseminated type develop. It is believed to be due to endogenous reinfection. Previous reports indicate that any organ, with the exception of the gastrointestinal tract, may become involved. Three cases of disseminated coccidioidomycosis are reported, two with cerebral involvement and one with widespread necrotic manifestations. Eosinophilia of the spinal fluid is suggested as a possible diagnostic aid in the diagnosis of meningeal granulomatous coccidioidomycosis. The disease often mimics lymphoblastosis, tuberculosis or brain tumor.

New Orleans Medical and Surgical Journal

104:517-560 (July) 1952

Newer Drugs in Medical Management of Peptic Ulcer. M. W. Matthews.—p. 517.
Surgical Management of Peptic Ulcer. C. C. Craighead.—p. 525.
Psychosomatic Factors in Peptic Ulcer Case. R. E. Kennedy and D. H. Duncan.—p. 530.
Radical Groin Dissection in Neoplastic Disease. R. M. Landry.—p. 534.
*Internal Biliary Fistula. H. C. Ilgenfritz.—p. 538.
Clinical Aspects of Childhood Schizophrenia: Viewed from Integrative Levels. I. M. Marcus.—p. 541.

Internal Biliary Fistula.—Two cases of internal biliary fistula are reported. In the first case the cholecystoduodenal fistula was diagnosed before operation when the gallbladder was not visualized on cholecystography but there was a reflux of barium from the duodenum into the gallbladder following a barium meal. On exploratory laparotomy the hepatic flexure of the colon was found to be densely adherent to the small shrunken fibrotic gallbladder and was freed. The fistula was located between the ampulla of the gallbladder and the adjacent duodenum. These

organs were separated, and the gallbladder was removed. The common bile duct was greatly distended with soft stones, which were removed, and a T-tube was introduced. The tube was removed 12 days after operation, and the patient was discharged in good condition, and has remained free of biliary tract symptoms. In the second case the cholecystocholedochal fistula was not identified preoperatively. A diagnosis of cholelithiasis with common bile duct obstruction had been made. On operation the gallbladder was found to be small and contracted about a number of stones and was perforated in one area, adherent to the omentum, and in another area densely fixed to the hepatoduodenal ligament, with perforation into the common bile duct. A large stone was present at the site of the cholecystocholedochal fistula, obstructing the common duct. Cholecystectomy was performed, the stone was removed from the common bile duct, the common duct was explored, and a T-tube was introduced at the site of perforation. Convalescence was uneventful, and the T-tube was removed after 12 days. The patient has had no further symptoms referable to the gastrointestinal or biliary tracts. The author feels that the possibility of development of internal biliary fistula, with resultant severe damage to the extrahepatic biliary tract, is another argument in favor of routine cholecystectomy for gallstones, whether or not the stones are producing symptoms at the time of discovery.

Surgery, St. Louis

32:161-442 (Aug.) 1952. **Partial Index**

A Surgeon's Reflections on Medical Education. H. B. Shumacker Jr. —p. 161.

Respiratory Acidosis: Its Relationship to Cardiac Function and Other Physiologic Mechanisms. F. A. Miller, E. B. Brown, J. J. Buckley and others.—p. 171.

Significance of Pulmonary Hypertension in Constrictive Pericarditis: Pre- and Postoperative Study. J. G. Scannell, G. S. Myers and A. L. Friedlich.—p. 184.

Observations on Circulation in High Spinal Anesthesia. R. B. Lynn, S. M. Sancetta, F. A. Simeone and R. W. Scott.—p. 195.

Some Effects Upon Liver of Complete Arterialization of Its Blood Supply. R. Cohn and C. Herrod.—p. 214.

Temporary Use of Polyethylene Shunts in Resection and Homologous Graft Replacement of Aortic Arch in Dog. C. A. Hardin, T. L. Batchelder and P. W. Schafer.—p. 219.

*Early and Late Effects of Vagotomy on Gastric Secretions and Motility. C. R. Rowe Jr., K. S. Grimson, B. H. Flowe and others.—p. 226.

*Significance of Sympathetic Nervous System in Acute Cholecystitis. J. M. Howard, M. T. Milford and M. E. De Bakey.—p. 251.

Arteriovenous Fistulas and Arterial Aneurysms: Repair of Major Arteries Injured in Warfare, and Treatment of Arterial Aneurysm with Vein Graft Inlay. F. Gerbode, E. Holman, E. H. Dickenson and F. C. Spencer.—p. 259.

Thromboendarterectomy for Arteriosclerotic Thrombosis of Major Arteries. E. J. Wylie.—p. 275.

Autotransplantation of Thyroid Tissue in Treatment of Lingual Thyroid. H. Swan, F. Harper and S. P. Christensen.—p. 293.

Retention of Certain Plasma Volume Expanders Within Circulation of Human Subjects Following 1,000 Cubic Centimeter Hemorrhage: Preliminary Report. H. G. Barker, J. D. Elder, J. M. Walker and H. M. Vars.—p. 299.

*Danger of Administering Parenteral Fluids by Hypodermoclysis. W. E. Abbott, S. Levey, R. C. Foreman and others.—p. 305.

Blood Viscosity and Whole Blood Therapy of Burns. W. C. Quinby Jr. and O. Cope.—p. 316.

Congenital Malformations of Rectum and Anus. I. Clinical Features and Surgical Management in 120 Cases. T. C. Moore and E. A. Lawrence. —p. 352.

New Concept of Pathology of Megaloureters. O. Swenson.—p. 367.

Functional Results of Small Intestinal Segments as Bladder Substitutes Following Pelvic Evisceration: Progress Report. E. M. Bricker.—p. 372.

Gastrointestinal Hemorrhage and Ulceration Associated with Intracranial Lesions: Clinical and Experimental Study. J. D. French, R. W. Porter, F. K. von Amerongen and R. B. Raney.—p. 395.

Effects of Vagotomy on Gastric Secretions and Motility.—Rowe and associates reviewed secretory and gastrometric studies made on 175 patients in whom vagotomy had been done from June, 1944, to June, 1951, with a view to determining completeness of interruption of parasympathetic nerve pathways following surgery. Nine of the total number were treated for gastric ulcer, four by vagotomy alone; two by vagotomy and pyloroplasty; two by vagotomy and gastroenterostomy and one by vagotomy followed later by subtotal gastric resection. The remaining patients were treated for duodenal ulcer. Vagotomy alone was the treatment for 30. Vagotomy and some form of gastroenterostomy was done in 120 patients. Sixteen patients had vagotomy and a subtotal gastric resection. These different groups are discussed separately with regard to results of gastrometric studies, insulin tests, and fasting secretions. For testing the intragastric pressure the authors introduced a rubber balloon into the stomach, connecting it to a recording bromoform monometer and inflating it at two or three minute intervals with successive 50 cc. increments of air to a volume of 300 cc. Interpretation of the gastrometric tests was facilitated by the intramuscular injection of methantheline (banthine®) bromide if contraction waves seemed somewhat high, or the injection of caffeine if contraction waves seemed low. Apparently methantheline arrested contraction if the parasympathetic nervous system had not been completely interrupted, and the stimulation of contractions by caffeine failed if vagotomy had been complete. Of the tests employed, the gastrometric method seemed easiest to interpret. Occurrence of fluctuations of intragastric pressure approaching the average of the control patients seemed to suggest incomplete vagotomy. Three of the 4 patients showing this reaction among the 67 tested had recurrence of ulcer. Only one of the 63 patients whose fluctuations after vagotomy did not reach the control values had a mild recurrence. Gastrometric studies gave no evidence that there is any tendency toward return of contractions or decrease of tone during the years following vagotomy. Occasionally contractions increased or decreased slightly, but usually they remained low. This also held true for results of the insulin tests and the 12-hour overnight suctions.

Sympathetic Nervous System in Acute Cholecystitis.—A number of observers have directed attention to the effectiveness of splanchnic block and splanchnic section in the treatment of both acute and chronic pancreatitis. The similarity in pain and pain pathways in pancreatic and cholecystic diseases and their frequent association would suggest that this form of treatment might also be effective in acute cholecystitis, as has been reported recently by Bonnet and by Eastwood and Womack. This paper describes experiments undertaken to ascertain the effect of interruption of appropriate sympathetic pathways on the pathogenesis of acute cholecystitis. The first part of the study was concerned with clinical observations on the effect of splanchnic block using 1% procaine hydrochloride solution in six patients with acute cholecystitis, the diagnosis being confirmed in each instance by subsequent laparotomy. The results were similar to those obtained in acute pancreatitis, with almost immediate and complete relief of pain in all cases. The second phase of the investigation was concerned with the effect of sympathectomy on the progression of experimental acute cholecystitis in dogs. It was found that interruption of the sympathetic supply to the gallbladder and biliary tract in the dog affected the inflammatory process produced by ligation of the cystic duct and the introduction of bile salts into the gallbladder. Although only 15% of the control animals had normal gallbladders following this procedure, 57% of the animals having a simultaneous right sympathetic denervation had normal gallbladders, and 75% of those with bilateral denervation. The authors believe that the underlying mechanism may be due to the abolition of autonomic reflexes, resulting in subsidence of smooth-muscle spasm and vasoconstriction and consequently regression of the inflammatory process itself.

Dangers of Hypodermoclysis.—Peripheral vascular collapse and oliguria occasionally result from the subcutaneous, subfascial, or intramuscular injection of an electrolyte-free solution, but many physicians are not aware that such serious difficulties may occur following this procedure. Abbott and his collaborators discuss the studies they carried out on seven patients that reemphasize these dangers.They found that when a 5% dextrose or a 10% invert sugar solution is administered by hypodermoclysis, transient water and salt depletion of the extracellular fluid compartment occurs. Sizable decreases in the plasma volume result from the shift of fluid, presumably into the site of the injection and into the intracellular space. Such alterations are likely to be encountered when hypertonic solutions are used or when isotonic solutions very low in, or devoid of, inorganic electrolytes are given. Oliguria, anuria, and circulatory collapse may result from a hypodermoclysis of an electrolyte-free solution, especially in patients with incipient shock or in dehydrated or salt-deficient persons.

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FOREIGN

Ärztliche Wochenschrift, Berlin

7:665-688 (July 18) 1952. **Partial Index**

Conservative Treatment of Peptic Ulcer. N. Henning.—p. 665.
Reciprocal Immunity Between Abdominal Typhoid and Paratyphoid B. W. Maassen.—p. 670.
*Corticotropin in Reiter's Disease. H. Goldeck and K. Donat.—p. 672.
*Genital Diphtheria and Variations in Chain of Contagion. H. Jacobi. —p. 674.
Malignant Melanoma. A. Greifelt.—p. 676.

Corticotropin in Reiter's Syndrome.—The patient, now aged 37, had had in 1941 nonspecific urethritis associated with conjunctivitis and arthritis of the knees, which had been diagnosed as Reiter's disease. In October, 1951, he experienced burning in the urethra with a whitish urethral discharge, which proved to be nonspecific. Two days later conjunctivitis developed, and three days after that the left knee joint became swollen and painful. The hip joints also became sensitive to pressure. After fever therapy and treatment with aureomycin, gold, and bismuth had proved ineffective, corticotropin (ACTH) produced decided improvement. The authors believe that this indicates that Reiter's syndrome is not a separate entity, but is an allergic form of nonspecific polyarthritis.

Genital Diphtheria.—The first of the five cases of genital diphtheria described concerned a woman, aged 41, who lived in overcrowded and unsanitary accommodations with several refugee families. A child of another family living in the same room with her had pharyngeal diphtheria. The woman complained of a burning sensation on micturition; the external genitalia were swollen and a grayish-white membrane covered the labia minora. Attempts to detach the membrane produced pain, and ulceration was revealed. The inguinal lymph nodes were enlarged. A smear from the vulva yielded diphtheria bacilli. Intramuscular injection of diphtheria antitoxin was followed by the subsidence of fever after three days, and six days later the labial ulcerations had cleared up. The second patient, a 66-year-old woman lived in the same refugee camp as the first patient. The third patient, a 13-year-old child had pharyngeal and genital diphtheria, and both subsided following serum therapy. The fourth patient was a nurse. The fifth patient was a married woman whose husband proved to be a carrier of diphtheria bacilli. Edema and membrane formation are the most characteristic manifestations of genital diphtheria. Burning during urination and leukorrhea are observed during the initial stage. Antitoxin therapy is followed by cure within 3 to 10 days.

Beiträge zur klinischen Chirurgie, Munich

184:385-510 (No. 4) 1952. **Partial Index**

New Methods in Plastic Surgery of Nose. E. Schmid.—p. 385.
Mortality After Appendectomy. G. Mönch.—p. 413.
Behavior of Various Coagulating Factors of Blood Before and After Operations. W. Marggraf and K. Hinrichs.—p. 428.
Loss of Water and Blood Sugar Values in Postoperative Disorders. V. Jakovljevic.—p. 435.
Present Status of Treatment of Burns. J. Heymann.—p. 451.
Erroneous Diagnosis in Diaphragmatic Hernia. B. Karitzky.—p. 460.
*Formation of Pseudarthrosis in Long Tubular Bones. H. Scheffel.—p. 467.
Limitations of Surgical and Chemotherapeutic Treatment of Urogenital Tuberculosis. R. Hasche-Klunder and G. Oehlert.—p. 475.

Formation of Pseudarthrosis in the Long Tubular Bones.—Scheffel studied 12 fractures that were observed among a total of 300 closed diaphysial fractures of tubular bones. In these 12 cases cortical splinters with attached periosteum were interposed between the ends of the fractures. Open fractures and those due to gunshot injury were not included in this study so that the factor of infection could be ruled out. In 6 of these 12 cases pseudarthrosis resulted and in others healing was greatly delayed. Observations on these cases corroborated the opinion expressed by Brun in 1918, that the interposition of bone fragments covered with periosteum interferes with union of the fracture. Small bone splinters usually retard healing, whereas larger ones, those comprising peel-shaped corticoperiosteal fragments, cause pseudarthrosis. In the case of small bone splinters, the osseous consolidation was accelerated by elimination of the obstructing bone and application of pressure. In order to avoid the formation of a pseudarthrosis, it may be advisable either to place the fragments into their original location by means of a surgical intervention, to fix them by means of wire loops or nailing, or to remove them completely.

British Journal of Dermatology, London

64:257-314 (July-Aug.) 1952

Pityrosporum Ovale. I. Martin-Scott.—p. 257.
Itching in Tension States. C. D. Calnan and D. O'Neill.—p. 274.
Dermatitis Herpetiformis in Children. C. Berlin.—p. 281.

British Journal of Industrial Medicine, London

9:165-244 (July) 1952

Effect of Cortisone on Experimental Silicosis. C. V. Harrison, E. J. King, J. C. Dale and R. Sichel.—p. 165.
Phagocytosis of Industrial Dusts in Tissue Cultures. K. W. Jötten and C. van Marwyck.—p. 173.
Causes of Death Among Gas-Workers with Special Reference to Cancer of Lung. R. Doll.—p. 180.
Studies on Cotton Dust in Relation to Byssinosis. II: Skin Tests for Allergy with Extracts of Cotton Dust. H. R. Cayton, G. Furness and H. B. Maitland.—p. 186.
Rheumatism in Miners. II: X-Ray Study. J. H. Kellgren and J. S. Lawrence.—p. 197.
History of Lung Diseases of Coal Miners in Great Britain. III: 1920-1952. A. Meiklejohn.—p. 208.
Effect of Psychological Handicap in Two Factory Groups. M. Markowe and L. E. D. Barber.—p. 221.
Acute Phenol Poisoning. S. J. Evans.—p. 227.

British Journal of Plastic Surgery, Edinburgh

5:77-148 (July) 1952. **Partial Index**

Premaxilla in Bilateral Clefts of Lip and Palate. D. N. Matthews.—p. 77.
Congenital Midline Cervical Cleft and Web. D. Wynn-Williams.—p. 87.
Dermoid Cyst of Nose. R. Champion and J. B. Prendiville.—p. 94.
Ankylosis of Temporo-Mandibular Joint. F. Braithwaite and F. Hopper. —p. 105.
Consideration of 180 Cases of Typical Fractures of Mandibular Condylar Process. W. D. MacLennan.—p. 122.
*Grease-Gun Injuries. R. C. Bell.—p. 138.

Grease-Gun Injuries.—A high-pressure grease gun delivers grease at the pinhole nozzle under a pressure of 2,000 lb. (907 kg.) per square inch as a fine spray that may penetrate the tissues like a needle and fill a finger before it can be pulled away. The gun need not be in contact with the skin for this to happen. The entry of the grease causes instantaneous swelling and increased interstitial pressure, which may be followed by vascular obstruction and gangrene. Chemical irritation may be followed by inflammation and sterile abscesses; if the tissues become secondarily infected, sloughing and necrosis of the skin and deeper tissues may occur. If the grease is near the skin, multiple small pits appear and a creamy foul-smelling substance is intermittently discharged. If the grease lies deeper, it may become encapsulated in fibrous tissue containing whorls of fibroblasts, foam cells, and polymorphonuclear leukocytes. Cyst-like spaces also occur, filled with grease and lined with connective tissue cells. Benign tumor-like formations, similar to the oleomas and paraffinomas of early plastic surgery, may require excision. Both the cases here reported occurred in the same garage and with a medium that contains 10% lime soap and 90% mineral oil. In the first case the finger began to swell and throb and felt tense. On the fourth day the terminal interphalangeal joint became stiff. Despite the application of a poultice twice daily, the finger became steadily worse, and the patient was hospitalized on the tenth day. The finger was explored through a bayonet incision based on the distal volar digital crease. Beneath the flap over the finger pulp globules of grease were visible. About 3 mm. beneath the skin a thin fibrous sac was found, from which some 0.75 cc. of grease exuded. The flap over the middle compartment was raised and a smaller bead of grease was found and removed. Exploration of the proximal interphalangeal crease revealed normal tissues. The patient returned to work at the end of two months. At four and a half months a little creamy material could still be expressed, but the finger had recovered its full range of movement. The second patient had been treated conservatively. His long period of discomfort and loss of earning power terminating in an operation at the end of two years does not recommend conservative treatment, and early removal of the grease seems to be indicated.

British Journal of Radiology, London

25:341-394 (July) 1952

Radiology of Infantile Pyloric Stenosis. R. Astley and B. S. B. Wood. —p. 342.
Abdominal Aortography in Renal Diseases: Preliminary Report. R. Weyde.—p. 353.
p^{32} Beta Sources for Superficial Therapy. W. K. Sinclair and H. Blondal. —p. 360.
Electron Energies and Ion Densities in Water Irradiated with 200 keV, 1 MeV and 25 MeV Radiation. D. V. Cormack and H. E. Johns. —p. 369.
Venographic Diagnosis of Method of Recurrence of Varicose Veins. J. D. Dow.—p. 382.

British Medical Journal, London

2:107-174 (July 19) 1952

Gastric Gossip. A. Porritt.—p. 107.
Variability of Endocrine Dysfunction in Post-Partum Hypopituitarism. M. H. Oelbaum.—p. 110.
Indigenous Amoebiasis: Recent Outbreak in England. T. C. Morton, W. P. Stamm and R. Seidelin.—p. 114.
Value of Haematology in Diagnosis of Chronic Plumbism. J. M. Fullerton.—p. 117.
Bact. Coli in Infantile Diarrhoea. R. A. Shanks and L. P. Studzinski. —p. 119.
Further Observations on Occurrence of Bact. Coli D 433 in Adult Faeces. J. S. Stevenson.—p. 123.
Human Salmonella Typhi Murium Infection Due to Duck Eggs: With Special Reference to Flocks of Ducks. A. A. Miller.—p. 125.
Pelvic Tuberculosis and Pregnancy. I. A. Donaldson.—p. 128.

2:175-244 (July 26) 1952

Physiopathology of Glucose Excretion by Human Kidney. P. Govaerts. —p. 175.
*Control of Gastric Acidity. A. H. Douthwaite and A. B. Shaw.—p. 180.
Investigation of the Aged Sick in Their Homes: Survey of 215 Patients in the Borough of St. Pancras. A. N. Exton-Smith.—p. 182.
Surgery in Old Age. R. A. C. Owens and A. F. Murphy.—p. 186.
Psittacosis in a Family. B. K. Ellenbogen and C. M. Miller.—p. 189.
Symptomless Carriers in Home Contacts in Sonne Dysentery. J. B. M. Davies.—p. 191.
Outbreak of Trypanosomiasis. R. G. Davies.—p. 192.
Diagnosis of Human Trypanosomiasis. G. F. T. Saunders.—p. 193

Control of Gastric Acidity.—It occurred to Douthwaite and Shaw that the effect of the intragastric milk-alkali drip might be provided by the continuous sucking of tablets containing milk solids and alkalis. They wanted a tablet in the form of a compressed disk that could be conveniently lodged between the cheek and the gum and that would dissolve slowly and yet satisfactorily depress gastric acidity. They finally prepared a suitable tablet that contained whole milk solids combined with dextrins and maltose, magnesium trisilicate, magnesium oxide, calcium carbonate, magnesium carbonate, and oil of peppermint. This tablet, if lodged between gum and cheek, dissolved in 20 to 30 minutes. Its food value was approximately 11 calories. Chemical analysis revealed that the neutralizing power of the tablet was due mainly to the magnesium oxide component. The proportion of the adjuvant antacids included in the tablets for their neutralizing action was chosen with the object of avoiding diarrhea or constipation. The efficacy of this tablet was first studied on seven patients with duodenal ulcer and a high acid curve. In the second group of patients there were five men with duodenal and one woman with gastric ulcer. The results obtained in these two studies proved that gastric acidity can be effectively controlled by the sucking of a suitable tablet of milk solids and alkalis. The reduction of gastric acidity obtained was far more pronounced and prolonged than that obtained by any previous method, other than the continuous intragastric drip, with which it compares favorably. It is suggested that the continuous sucking of these tablets will hasten cure and prevent relapse of peptic ulcers.

Bruxelles-Médical, Brussels

32:1641-1688 (Aug. 10) 1952

Virus Concept of Cancer in Light of Recent Research. C. Oberling. —p. 1649.
*Malignant Lymphogranulomatosis and Pregnancy; Three New Observations. M. Nagel.—p. 1659.

Malignant Lymphogranulomatosis and Pregnancy.—According to the literature Hodgkin's disease and pregnancy are rarely associated. A report of three new cases is presented by the author. The first of these was a nulliparous 22-year-old woman who became pregnant in the course of Hodgkin's disease of two years' duration. Six months after delivery of a normal baby she again became pregnant. Because of the short interval between the two pregnancies an exacerbation of the Hodgkin's disease was feared, and the pregnancy was interrupted. Sterilization was postponed, to give the patient the chance of another pregnancy in case of a prolonged remission of her disease after appropriate treatment. Within two years the patient again became pregnant without aggravation of her condition. She gave birth to a normal infant who died at the age of three weeks from enteritis. The second patient, aged 23, was in the fourth month of her second pregnancy when it was discovered that the lymph nodes along the right common carotid artery were enlarged and a mediastinal mass was present. The site of these lymphogranulomatous lesions made irradiation treatment possible without any risk of irradiating the uterus. The patient was allowed to proceed to term. She gave birth to a normal child, the placenta did not show any lymphogranulomatous involvement, and the mother's condition remained satisfactory. In the third case a 38-year-old woman had had two normal deliveries at term. During a third pregnancy an extrapulmonary tumor close to the apex of the right lung was demonstrated by roentgenologic examination. The tumor was punctured, and the aspirated specimen showed a predominance of eosinophils and Sternberg's cells. No adenopathy was palpable. The roentgenologic aspect of the tumor did not change after a normal delivery, and the patient's general condition remained excellent. An expectant attitude was adopted in this case because a benign clinical form of the disease could be anticipated on the basis of the symptoms and the course of the disease. From these three cases of Hodgkin's disease, the only ones among 11,500 pregnancies observed at the university clinic in Brussels in 10 years, the author concludes that pregnancy does not seem to influence the development of malignant granulomatosis or to hasten its course; neither does Hodgkin's disease appear to affect by itself the patient's fertility, gestation, delivery, or post partum course. The transmission of Hodgkin's disease from the mother to the fetus by transplacental route is possible, but rare. Therapeutic abortion does not seem justified. Irradiation treatment according to the principles and methods applied in the absence of pregnancy but with adequate shielding of the fetus is the therapy of choice.

Canadian Journal of Public Health, Toronto

43:189-226 (May) 1952

Trends in Policy Practices in Municipal Health Administration. A. Groulx, M. Bergeron, L. A. Clarke and others.—p. 189.
*Human Encephalitis in Saskatchewan Caused by Virus of Western Equine Encephalomyelitis. J. S. Fulton and A. N. Burton.—p. 212.

Human Encephalitis Caused by the Virus of Western Equine Encephalomyelitis.—Western equine encephalomyelitis was first recognized in Saskatchewan when an extensive outbreak occurred during the summer of 1935. Even more severe epidemics followed in 1937 and 1938. Since that time, the disease has appeared endemically each season, with periodic localized outbreaks. These local outbreaks invariably occurred in districts where isolated cases were recognized the previous year. Soon after the first outbreak in horses, several persons contracted a disease of the central nervous system that was thought to be nonparalytic poliomyelitis until a relationship to the equine disease was suspected. The most extensive outbreak in man was that of 1941, when 550 cases were reported, with a mortality rate of 10%. It was generally thought that the equine virus was responsible for the 1941 outbreak. Neutralization tests were carried out for the recognition of the acute disease and to determine if other diseases might be sequelae to a previous infection with Western equine encephalomyelitis. It was shown that mild cases of Western equine encephalomyelitis can be confused with more benign diseases such as influenza. Positive reactions may continue after infection for from 33 months to 12 years. Mental disease may follow infection with the equine virus, the symptoms appearing some time after the acute illness.

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Canadian Medical Association Journal, Montreal

67:93-182 (Aug.) 1952

Guided Catheterization and Radiography of Abdominal Vessels. A. M. Rappaport.—p. 93.
Surgical Treatment of Coronary Thrombosis. G. Murray.—p. 100.
Fractures of Condyles of Tibia Immobilized by Stader Splint. T. G. Fyshe.—p. 103.
Clinical Use of Radioactive Isotopes. C. H. Jaimet.—p. 108.
Gastric Ulcer: Benign or Malignant. D. MacDonald.—p. 112.
Congenital Hernia of Diaphragm. J. H. Ebbs and H. H. McGarry.—p. 115.
Acute Salicylate Poisoning in Children: Report of Six Cases. R. Poirier and R. Corbet.—p. 117.
Psychology of Asthma. P. G. Edgell.—p. 121.
Post-Cholecystectomy Disease. A. L. Murphy.—p. 125.
Acute Puerperal Inversion of Uterus. S. Norris.—p. 129.
The Sciatica Problem. B. J. Alpers.—p. 131.
Impermanent Diabetes: Complication of Traumatic Pancreatitis. D. H. Barnbrook.—p. 143.
Preparation for Childbirth by Physiotherapy. H. M. Nicholson and G. A. Simpson.—p. 145.
*New Method of Treating Pelvic Abscesses. W. R. C. Tupper.—p. 147.

New Treatment of Pelvic Abscess.—Until three years ago Tupper had treated pelvic abscesses with rest, heat, antibiotics, and blood transfusions until localization and softening occurred. If, at this point, the abscess seemed accessible from below, a needle was inserted into its cavity and an incision made along it through which a T-tube could be inserted. Drainage was allowed for from 8 to 10 days, and then, if temperature, pulse, etc., had become normal the tube was removed. With this method a draining sinus frequently remained and hospitalization often lengthened into months. The new method described here consists of simple aspiration of the purulent material through the pouch of Douglas and injection into the cavity of 1 million units of penicillin and 2 gm. of streptomycin. Following the usual vaginal preparation, the posterior lip of the cervix is grasped with a tenaculum and pulled forward, exposing the pouch of Douglas and lateral fornices through which an 18 gage needle six to eight in. (15 to 20 cm.) long is inserted into the abscess cavity. The purulent material is then aspirated completely. It is important to empty the abscess cavity as completely as possible before injecting the antibiotics. The needle is then withdrawn. All patients received penicillin and streptomycin intramuscularly before and after the aspiration. All of the 14 patients treated in this manner had elevated temperature and pulse, and all but one had an elevated white blood count. Nine were considered seriously ill, and eight had generalized peritoneal irritation. All showed marked lower abdominal tenderness. One patient was admitted with an ileus. Pelvic examination revealed tubo-ovarian masses in seven and masses in the pouch of Douglas in the other seven. The conditions giving rise to the abscesses were septic abortion in four cases, puerperal infections in three cases, and chronic pelvic inflammatory disease in seven cases. One aspiration sufficed in most cases, but five required two and one, three aspirations. The amount aspirated varied from 5 to 210 cc. All patients were discharged symptom-free after from 5 to 25 days. As far as the authors were able to learn, only one of the women has had an acute exacerbation of her inflammatory lesion, and she was treated with penicillin and discharged with no abscess formation.

Chirurg, Heidelberg

23:289-352 (July) 1952. **Partial Index**

Experiences with Surgical Treatment of Echinococcus Disease. B. Kourias and G. Marangos.—p. 289.
Suture Dehiscence in Laparotomy Wounds. P. Seulberger and H. Peters.—p. 296.
*Significance of Sternal Chain of Lymph Nodes for Metastatization of Carcinoma of Breast. F. Mörl.—p. 289.
Aseptic Necrosis in Astragalus. F. Jenny.—p. 300.
Neurosis of Femoral Head Following Median Fracture of Neck of Femur. R. Maatz and H. Lempert.—p. 304.
Follow-up Examination of Fractured Neck of Femur After Nailing. P. G. Höhle.—p. 306.

Metastases of Carcinoma of Breast to Sternal Lymph Node Chain.—Previously carcinoma of the breast was thought to metastasize to the axillary and infraclavicular nodes, and the sternal lymph nodes have been largely disregarded, although a few isolated investigators have now and then called attention to them. Mörl demonstrated by means of injections of India ink into the mammary glands of women who were dying from breast cancer that the India ink particles had been carried to the axillary and infraclavicular lymph nodes in 30 of 34 and to the sternal lymph nodes in 24 of the 34 women. It was largely immaterial into what quadrant of the breast the injection had been made; in fact in many instances in which the injection had been made into the external quadrants, ink particles were found in the sternal lymph node chain. A series of 30 women with breast cancer of the Steinthal 1 or 2 classification were subjected to classical radical mastectomy, and in addition the sternal lymph node group, from the fourth to the first intercostal spaces, were extirpated. Of 10 patients with the Steinthal stage 1 of breast cancer, 2 had carcinoma in the sternal lymph node chain but none had involvement of the axillary and infraclavicular chains. Of the 20 women with the Steinthal stage 2 of breast cancer, 9 had involvement of the sternal lymph nodes and 17 of the axillary and infraclavicular nodes. Mörl concludes that the sternal chain of lymph nodes is of great importance in the metastatization of breast carcinoma, and that disregarding this chain in the surgical treatment is probably responsible for many therapeutic failures. He feels that extirpation of these lymph nodes will be more effective than irradiating them with roentgen rays.

Klinische Medizin, Vienna

7:337-384 (Aug. 1) 1952. **Partial Index**

*Panmyelophthisis After Treatment with Methylphenylethylhydantoin. E. Kresbach and G. Knorr.—p. 346.
Clinical Experiences with Conservative Management of Delivery in Elderly Primiparas. S. Kolonja and W. Schreiner.—p. 351.
Vitamin E in Therapy of Menopausal Disturbances. E. Gitsch.—p. 358.

Panmyelophthisis After Treatment with Methylphenylethylhydantoin.—The patient was a young woman, aged 19, who had had epileptic attacks since the age of 14. For some time she had been treated with phenobarbital, but then the medication had been changed to methylphenylethylhydantoin. After many months of this treatment she had become pale, and severe anemia had been detected for which several blood transfusions had been given. At the present time the results of sternal puncture and of blood examinations indicated severe panmyelophthisis. In addition to blood transfusions and hemostyptic drugs, large doses of vitamins C, B_2 and K were given, and attempts were made to stimulate hematopoiesis by vitamin B_6 and B_{12}, folic acid, and large doses of iron. Under the influence of these measures, the cutaneous and mucosal hemorrhages were temporarily arrested, but the septic fever remained unchanged. Later mucosal hemorrhages recurred, coma developed, and the patient died. An autopsy was performed, and it was assumed that the hydantoin preparation had produced toxic destruction of the bone marrow.

Lancet, London

2:99-152 (July 19) 1952

Feeding Disorders in Infants: Their Interpretation. C. W. Vining.—p. 99.
Management of Ileostomy: Including Its Complications. B. N. Brooke.—p. 102.
*Antibiotics and Amoebic Dysentery. R. Elsdon-Dew, T. G. Armstrong and A. J. Wilmot.—p. 104.
Method of Assessing Mechanical Properties of Lungs and Air-Passages. A. C. Dornhorst and G. L. Leathart.—p. 109.
Eosinopenic Response to A.C.T.H. Administered Intravenously at Various Rates. R. D. T. Cape, E. P. Carruthers, H. S. Robinson and others.—p. 111.
Nutritional Neuropathy in Prisoners-Of-War Repatriated from Hong-Kong: Follow-Up. C. A. Clarke and W. Sircus.—p. 113.
Disseminated Lupus Erythematosus Complicated by Miliary Tuberculosis During Cortisone Therapy. J. N. Harris-Jones and N. K. Pein.—p. 115.

Antibiotics and Amebic Dysentery.—The ingestion of Endamoeba histolytica does not necessarily mean that the patient will have either dysentery or any other manifestation associated with this parasite. Differences in associated bacterial flora are regarded by many investigators as decisive and as an explanation of the difference in incidence of acute amebic dysentery in warm and temperate climates. The high incidence of amebic dysentery in the Durban area, Union of South Africa, has enabled Elsdon-Dew and his associates to use a statistical approach to assess the results of therapy. All of the patients accepted for the trials had diarrhea with blood and mucus, showed ulcera-

tion on sigmoidoscopy, and had motile E. histolytica in stools or ulcer scrapings. Patients who passed cysts were not accepted. In the Durban African, amebic dysentery tends to be unusually severe. The authors excluded patients who showed chloride deficiency, abdominal distension, sloughs on sigmoidoscopy, or other signs which they found to presage perforation or ileus, because it was thought unjustifiable to experiment on such severely ill patients. It was found that aureomycin, terramycin, and a combination of penicillin and succinyl sulfathiazole are the most effective amebicides in treatment of acute amebic dysentery, in that they produce a much higher immediate cure rate than any directly amebicidal drug. Probably the main action of the antibiotics is on organisms other than the ameba. Whether these organisms assist the ameba by attacking the host or by supplying essential factors remains in doubt. There is in vitro evidence that aureomycin and terramycin have some direct amebicidal effect. To ensure success the antibiotics used should have the widest possible antibacterial "spectrum," for it is known that more than one species of bacterium can support the ameba, and all possible symbionts should be removed. Under the action of certain antibiotics, notably chloramphenicol and streptomycin, patients with acute dysentery may become asymptomatic and not pass cysts. Apparently inadequate dosage will curb invasiveness and promote cyst passing. With aureomycin and terramycin early relapses after four to eight weeks are fairly usual. With the other antibiotics relapses are common. The authors therefore feel that established amebicides should at present be used in conjunction with antibiotics.

2:153-206 (July 26) 1952

Outbreak of Febrile Illness Associated with Coxsackie Virus. H. Kenyon, A. D. Macrae, R. J. Dodds and J. F. Galpine.—p. 153.
*Intra-Arterial Transfusion. D. L. C. Bingham.—p. 157.
Isonicotinic Acid Hydrazide in Treatment of Tuberculous Meningitis in Children. W. P. Sweetnam and E. F. Murphy.—p. 160.
Alkylamines in Treatment of Leukaemia. C. Gardikas and J. F. Wilkinson.—p. 161.
Chloramphenicol in Acute Shigella Dysentery. A. J. S. McFadzean and P. D. Stewart.—p. 166.
Acute Colonic Obstruction Due to Pancreatitis. D. C. Miln and T. H. C. Barclay.—p. 168.
Assessment of Mobility in Joints. P. O. Williams.—p. 169.

2:207-252 (Aug. 2) 1952

Arterial Lining. J. B. Duguid.—p. 207.
Trend of Serum-Cholesterol Levels with Age. A. Keys, F. Fidanza, V. Scardi and G. Bergami.—p. 209.
Torsion of Testis and Its Appendix. A. J. Walton.—p. 211.
Megaloblastic Anaemia of Pregnancy. M. C. G. Israels and F. A. L. Da Cunha.—p. 214.
Left Auricular Pressure Pulse in Normals and in Mitral Valve Disease. A. Wynn, M. B. Matthews, I. K. R. McMillan and R. Daley.—p. 216.
Formation of Immune A Iso-Antibodies with Special Reference to Heterogenetic Stimuli. H. Crawford, M. Cutbush, H. Falconer and P. L. Mollison.—p. 219.
Assessment of Growth in Disease: Use of Wetzel's Grid Illustrated by Rheumatic Fever. H. A. W. Forbes.—p. 224.
Chronic Ulceration of Leg Treated with Amnion and Chloramphenicol in Propylene Glycol. S. Shaw and E. Troensegaard-Hansen.—p. 225.
Secretion of Salt-Retaining Hormone by Mammalian Adrenal Cortex. S. A. Simpson, J. F. Tait and I. E. Bush.—p. 226.

Intra-Arterial Transfusion.—In traumatic shock, the blood pressure rapidly falls until an unstable equilibrium between blood volume, vascular bed volume, and the reduced blood pressure is established. Later, owing to the need for maintaining the rate of blood flow through vital organs, the circulating blood volume is increased by extraction of fluid from the tissue spaces, and the vascular bed volume is reduced by contraction of capillaries. The blood pressure then will rise and shock may apparently be overcome. This apparent improvement is dangerously misleading, and a patient who is operated on while in this phase of "masked shock" without preliminary blood transfusion to restore his blood volume is in danger of overwhelming shock from the additional surgical trauma. Intravenous blood transfusion is a valuable means of overcoming shock and has saved countless lives. Its success depends, however, on an increasing tone in the smaller peripheral vascular channels, so that blood added intravenously will be returned to the heart and to the general circulation. If a reasonable degree of vascular tone is not present, e. g., in late and severe shock, blood that is given intravenously will largely accumulate in venous channels and capillaries, and may never pass through the heart and lungs to the arterial circulation. Attempts to reduce the volume of the vascular bed with vasopressor drugs have been disappointing. The introduction of blood into the arterial tree under pressure at about 120 mm. Hg. or slightly above this figure, causes the blood pressure within the whole arterial system to rise rapidly to normal. Intra-arteriolar and intracapillary pressure is restored, and perhaps pooled and laked blood from flaccid capillaries and venules is pushed into the great veins and so back to the heart, which is thus once again provided with blood to pump onwards. A dangerous state of circulatory collapse may thus be reversed almost immediately. The technique of intra-arterial transfusion is described, and experience in more than 100 cases suggests that intra-arterial transfusion is far superior to intravenous transfusion, both in the treatment of established shock and as a preventive measure in operations in which serious shock is expected. Apparatus for intra-arterial transfusion should be available in the operating rooms and casualty departments of all hospitals.

Medical Journal of Australia, Sydney

2:1-40 (July 5) 1952

Diagnosis and Clinical Features of Poliomyelitis. S. Williams.—p. 1.
Management of Acute Phase of Poliomyelitis. H. McLorinan.—p. 3.
Prevention of Crippling Following Poliomyelitis. J. Macnamara.—p. 4.
Public Health Aspects of Poliomyelitis in Victoria. B. P. McCloskey.—p. 8.
Poliomyelitis Epidemic of 1950-1951 in the Newcastle Area. E. Byrne and A. T. Roberts.—p. 10.
Tracheotomy in Bulbar Poliomyelitis. L. G. Deithe.—p. 13.
Poliomyelitis and Atmospheric Conditions in Certain Australian Cities. D. J. R. Snow.—p. 17.
Respiratory Insufficiency in Poliomyelitis. S. E. J. Robertson.—p. 19.
*Case of Poliomyelitis with Facial Paralysis Following Dental Procedure. D. J. R. Snow.—p. 22.

Poliomyelitis Following a Dental Procedure.—Two lower left molars of an 8-year-old boy had been extracted following anesthesia induced by mandibular block. Two weeks later, a history of fever, drowsiness and neck stiffness of about one week's duration was obtained, the existence of left facial paralysis was confirmed, a lumbar puncture was performed, and the boy was hospitalized with a diagnosis of poliomyelitis. After four weeks of bed rest, symptomatic treatment, and routine physiotherapy, the hamstrings had recovered much of their lost function and the child was able to walk fairly well. However, facial weakness was still evident. Facial asymmetry could still be observed two months later. At the time this boy was ill, a great number of poliomyelitis cases were being reported, and there was apprehension that an epidemic was developing. Two other boys living in the vicinity had poliomyelitis, and one of them died of respiratory involvement. The clinical and other evidence in the reported case is consistent with the diagnosis of acute anterior poliomyelitis involving the lumbar enlargement of the spinal cord and a portion of the bulb, and it is not unreasonable to suggest that symptoms and signs were precipitated by a dental procedure.

Medicina, Madrid

20:161-228 (March) 1952. **Partial Index**

Advances in the Treatment of Bronchitis. B. Sánchez Cuenca.—p. 161.
Post-Spinal-Anesthesia Headaches and Lumbar Subarachnoid Tension. J. M. López-Porrúa and P. J. Toni Starling.—p. 166.
Processes Affecting the Right Side of the Abdomen in Urological Practice. A. Sánchez Salvador.—p. 193.
*Present Status of Prophylaxis in Trachoma. F. Silván.—p. 210.

Present Status of Prophylaxis in Trachoma.—Trachoma may be transmitted directly or indirectly. Indirect transmission occurs chiefly in surroundings in which hygienic conditions are poor and parasitism, lack of cleanliness, and crowding lead to contact with recently contaminated objects. Lice constitute a reservoir for the virus, and flies transport infected material. The primary source of the infection, however, is in man; it has never been shown to occur spontaneously in animals. No specific remedies or effective immunizing agents have yet been found. The three most useful therapeutic agents are the sulfonamides, penicillin, and aureomycin. The effect of the sulfonamides is variable, improvement sometimes lasting and sometimes being followed by recurrence. Local application of penicillin in the form of a pomade or lotion leads rapidly to disappearance of the virus

and cessation of secretion, thus reducing the danger of contagion. Aureomycin has also proved beneficial both in pomades and in lotions. Measures designed to increase local and general resistance are important; common conjunctivitis and ophthalmoconiosis caused by working in a dust-laden atmosphere predispose the eyes to trachoma, and such factors as fatigue and chronic infection favor its development. Fundamental prophylactic measures comprise a census of patients, the establishment of separate quarters in schools, factories, and workshops when conditions warrant it, so that isolation of persons with trachoma may be effectively maintained, and compulsory treatment with chemotherapeutic agents given. These measures, reinforced by supplementary procedures of personal and environmental hygiene, should eliminate trachoma within a few years.

Minerva Pediatrica, Turin

4:339-386 (May 15) 1952. **Partial Index**

Diagnosis of Subarachnoid Blocks in Tuberculous Leptomeningitis Treated with Streptomycin. P. Durand and A. De Maestri.—p. 339.
*Erythrocyte Sedimentation Rate in Children with Tuberculous Meningitis Treated with Streptomycin. B. Carleiti and C. Fasari.—p. 343.
*Therapy of Tuberculous Meningitis in Infancy. U. Widmer and I. Lanza. —p. 366.

Erythrocyte Sedimentation Rate in Tuberculous Meningitis.—The erythrocyte sedimentation rate was determined for 81 children with tuberculous meningitis during streptomycin therapy. The reactions of the 48 children who died and of the 33 who recovered or in whom there was an improvement were studied separately. The patients were also grouped according to the various tuberculous localizations associated with meningitis. The values of the first and last tests are given for each patient. Since there was never a relationship between the erythrocyte sedimentation rate and the course of the disease, the condition of the spinal fluid, and the other localizations involved, this test has no prognostic value during streptomycin therapy of tuberculous meningitis with or without pulmonary involvement.

Streptomycin Therapy in Tuberculous Meningitis.—The authors review their results with streptomycin therapy in tuberculous meningitis from 1947 to 1950. From May, 1947, to October, 1948, the first therapeutic attempts gave poor results, in that of 11 patients only 2 (18.2%) recovered and the other 9 died from six days to eight months after the treatment was instituted. These poor effects are attributed to the meager knowledge available at that time about the proper dosage of the drug and duration of treatment. Intramuscular and intrathecal therapy were combined. The daily intramuscular dose was 450 to 900 mg. for 10 days, then 300 mg. for 10 to 15 days, and later 150 mg., with a 10-day treatment-free interval every month. The intrathecal dose was 25 to 100 mg. given every day for 10 days, then every 2 days, every 5 days, every 7 days, and sometimes every 15 days. After an initial aggravation of the symptoms there was a clinical improvement, and the therapy was unwisely interrupted. After October, 1948, results were better because treatment was continued for an average of six months. For the first 7 to 15 days 10 to 12.5 mg. for infants and 15 to 20 mg. for children and adolescents were given intrathecally twice daily. When there was a spinal subarachnoid block, the drug was given by the suboccipital route in the morning and by the lumbar route in the evening. After the first clinical improvement only one injection, lumbar or suboccipital according to the patient's condition, was given each day for 50 to 70 days. When the spinal fluid picture had improved, the injection was performed every two days, then every four days until it became normal. Then therapy was tapered off with weekly and finally bimonthly injections. The fluid was examined every month for several months. Streptomycin was also given intramuscularly daily for two to three months, with treatment-free intervals of four to seven days during the following months. In a few cases streptomycin therapy was combined with intravenous administration of a sulfone compound, or oral and intravenous administration of *p*-aminosalicylic acid, but this did not bring better results. Of the 30 patients treated since 1948, 16 (53.5%) recovered and have been well for 10 to 28 months, leading a normal life. Among these were three children who had a spinal subarachnoid block. Some of the 14 who died were hospitalized in critical condition, and most of them were 3 to 4 years old. For children of this age the prognosis is still unfavorable. Good results can be obtained in treatment of tuberculous meningitis if streptomycin is administered as soon as possible, if the therapy is carried out well, and if the clinical symptoms and the fluid condition are followed accurately.

Nederlandsch Tijdtschrift v. Geneeskunde, Amsterdam

96:1681-1736 (July 12) 1952. **Partial Index**

Clinical Value of Biochemical Tests in Diagnosis of Liver Diseases. T. E. Bloem and H. Neumann.—p. 1692.
*Retropubic Prostatectomy. A. G. Van Essen.—p. 1699.

Retropubic Prostatectomy.—At the surgical clinic of the University of Groningen almost all patients with benign hypertrophy of the prostate are now subjected to retropubic prostatectomy. Until March, 1951, the method had been used in a total of 250 patients with a surgical mortality of only 1.6%. Patients who formerly would have been regarded as unsuitable for surgical treatment are no longer condemned to treatment by suprapubic drainage or an indwelling catheter, and can be operated on. Among the complications, osteitis pubis causes the greatest concern, but even if this develops, the patient is usually comparatively free from complaints after several weeks or months.

Nordisk Medicin, Stockholm

48:921-954 (July 4) 1952. **Partial Index**

Pulmonary Edema Treated with Positive Pressure Breathing. S. Jørgensen. —p. 927.
*Complete Auriculoventricular Block: Analysis of 24 Cases. H. Karni and L. Werkö.—p. 930.
Cancer Associated with Pregnancy. F. Zachariae.—p. 933.

Complete Auriculoventricular Block.—Four men and 20 women, mostly aged between 50 and 70, with complete auriculoventricular block, were treated from 1933 to 1951; 11 are still living. The shortest duration of life after onset of the complete block was 3 days, the longest, 17 years. Sixteen patients had cardiac decompensation and had signs of left or right heart insufficiency, four had angina pectoris, syncope occurred in nine, and four had other cerebral symptoms. Coronary sclerosis and hypertension were the most frequent etiological factors; myocardial infarction was the cause in three cases, acute tonsillitis in one case, rheumatic fever in one case, and in one the cause was uncertain. Nine patients received digitalis; five of these had decompensation and tolerated the drug well. Karni and Werkö state that complete auriculoventricular block does not necessarily worsen the prognosis of the basic disease, irrespective of the etiology of the block. Complete block leads relatively soon to marked enlargement of the heart, to reach a compensatory increase of the cardiac output. Complete block does not prevent digitalization in decompensation, but the authors warn that the danger of ventricular tachycardia and ventricular fibrillation in such cases must not be underestimated. Increased irritability from ventricular foci contraindicates administration of digitalis. Ephedrine and atropine seem to be valuable for application for a longer time; relatively large doses are advised.

Philippine Medical Association Journal, Manila

28:323-382 (June) 1952

*Comparative Study Between Two Resuscitation Methods—Schafer and H. N. (Holger Nielsen). R. Y. Atienza, J. B. Asistio and A. C. Bacero. —p. 323.
Bacteriological Examination of Soft Drinks. A. P. De Roda and R. Sta. Ana.—p. 334.
Progress of Refraction. R. J. Ongsiako Jr.—p. 338.
Pre-Requisites for Adequate Treatment of Fractures. A. S. Besa.—p. 345.
Is So-Called "Immune" Reaction to Smallpox Vaccination a Misnomer? N. Victoriano and P. Salvador.—p. 348.

Comparison of Schafer and Holger Nielsen Methods of Resuscitation.—The Sylvester and Schafer methods of artificial respiration have been most popular in English-speaking countries, but the Holger Nielsen chest-pressure, arm-lift method has been shown to be more efficient because it forces both expiration and inspiration. This paper cites experiments in which the

Schafer prone-pressure method is compared with the Holger Nielsen method. The latter method provides greater ventilation and is less tiresome than the other methods of resuscitation. The arm-raising phase can be carried out even while the victim is being transported on a stretcher. The method involves no danger of injury. It can be employed safely even in pregnant women.

Policlinico (Pract. Sect.), Rome

59:765-796 (June 9) 1952

*Controlled Hypotension as Means of Reducing Hemorrhages During Surgical Interventions. C. Manni.—p. 765.
Vaccine Therapy and Nonspecific Protein Therapy Combined with Administration of Antibiotics in Treatment of Surgical Sepsis. B. Baroni.—p. 773.
Carriers of the Mediterranean Blood Disorder in Reggio Emilia Province. F. Saccani and M. Cecchini.—p. 775.

Controlled Hypotension in Surgical Patients.—After reviewing the literature on the mechanism of action of the ganglion-blocking drugs and the various methods used to induce hypotension, the authors report their first results on hypotension induced with hexamethonium bromide. The drug was given to 31 patients in whom operations were performed on the thyroid, breasts, temporo-occipital and lateral cervical regions, mandible, jaw, orbit, and parotid gland. One plastic operation and three amputations were also performed. The patient was placed on an inclined plane with the operative area on the highest point, and the blood pressure was recorded before and after anesthesia. The first dose of hexamethonium bromide was 20 to 25 mg., and usually the pressure dropped within two to three minutes. When it did not reach the desired values, additional doses of 10, 15, and 20 mg. were given until it dropped to 70 or 80 mg. Hg. Total doses ranged from 25 mg. to 120 mg. Effects were good, and the operative area became ischemic in all patients except three in whom 120 mg. of hexamethonium bromide had little effect. Patients whose postoperative pressure did not return to the preoperative values were given small blood transfusions or intravenous injection of vasopressor drugs. There were no hematomas or postoperative hemorrhages. In two patients mydriasis persisted for two to three hours postoperatively, although the pressure had returned to the preoperative level and the general condition was good.

Praxis, Bern

41:641-656 (July 24) 1952

Prevention of Arthritis by Combined Drug Treatment. P. Ducommun.—p. 641.
*BCG Vaccination; Experiences with Vaccination Procedure at the Universities in Zurich. T. Wegmann, J. Meili and W. Weyland.—p. 645.
Local Treatment with "Priscol" (2-Benzyl-2-Imidazoline Hydrochloride) in Cases of Accidental Cauterization of Conjunctiva and Cornea. W. Liedtke.—p. 649.

BCG Vaccination.—Of 4,065 students who were newly registered at either one of the two universities of Zurich between 1946 and 1950 and on whom routine fluorescent screen examinations were performed, 3,840 submitted to tuberculin tests and 225 did not. Of the 3,840, 2,913 had positive results from the test and 927 had negative results. Of the 927 with a negative reaction to the test, 765 were subjected to BCG vaccination, 92 refused vaccination, and 70 did not keep their appointment for vaccination. The scarification technique proved to be cumbersome and time-consuming, but had been used in all vaccinated persons reported on. At present intradermal vaccination is practiced with 0.1 cc. of a vaccine containing 400,000 bacilli. Of the 765 vaccinated persons, 469 were followed up for one year, and within this period 446 (95%) of them had positive results from tuberculin tests while 23 (5%) had negative results. Since only 61% of the vaccinated students thus could be followed, morbidity statistics, which would not have provided a clear picture of the vaccination results, were omitted, while every effort was made to report all the students who had tuberculous manifestations following BCG inoculation. Only six such persons were detected, one with erythema nodosum, one with exudative pleurisy, and four with pulmonary tuberculosis. Reports of these patients showed exogenous reinfection in three in whom vaccination allergy was questionable or had not been obtained; a fourth patient had been infected shortly before the vaccination and therefore did not have a positive result from the tuberculin test which preceded the vaccination. In the patient who had erythema nodosum within five to six weeks after the vaccination, the vaccination was considered as an eliciting factor. A new infection despite BCG vaccination and established hypersensitivity was considered in the last patient. Four months after vaccination and two months after the hypersensitivity was established, he had started work as a laboratory technician with frequent contacts with patients with open tuberculosis and therefore had been unusually exposed to the disease. Complications after BCG vaccination are rare, and may be largely prevented by adequate precautionary measures.

Revista Clínica Española, Madrid

45:69-144 (April 30) 1952. **Partial Index**

Heart in Anthracosilicosis. J. G. Cosio.—p. 69.
On Clinical and Nosological Problem of So-called Mesenterium Commune. E. Roda Pérez and M. Fernández-Criado Pérez.—p. 77.
On Colonic Diverticulosis and Its Complications. J. I. Zorilla.—p. 83.
*How to Determine Whether a Patient with Mild Hypertension Is Susceptible to Vascular Accidents. A. Meyer-Heine and E. J. Benzecry.—p. 89.
Radiologic Diagnosis of Gastric Cancer. M. Roiz Noriega.—p. 94.

Prediction of Vascular Accidents in Mildly Hypertensive Patients.—Patients with identical arterial pressure readings may present widely divergent pulse wave recordings (piezograms) showing differences in peripheral vascular resistance. These indicate differences in the elasticity of the vessels and therefore in the patient's prognosis, since patients with inelastic vessels are most likely to have vascular accidents. Increased peripheral resistance is indicated by an increase in the reflected wave of the pulse pressure curve in relation to the primary wave. Patients whose heart rate is accelerated by nervousness, anxiety, or mild hyperthyroidism may show increased arterial pressure without any evidence of objective vascular lesions, but the increased pressure has no connection with true hypertensive disease. Normal pulse waves in such patients show that they are in no danger of nervous accidents or vascular disturbances. Many patients in this category have been needlessly subjected to restrictions of salt and liquids, and have been arbitrarily excluded from employment in which they might have attained success. Patients with pulse waves showing abnormal variations fall into three groups: (*a*) those in whom peripheral resistance is slightly increased, the vascular lesion is discrete, and there is no functional disturbance; (*b*) those in whom peripheral resistance is moderate and who have marked disturbances, angina pectoris, and lesions of the eye fundi; and (*c*) those with substantial peripheral resistance. The last group are usually the ones who have hemiplegia and severe coronary accidents. Pulse waves were obtained in 400 patients: central nervous system accidents did not occur in those with only slight increases in both arterial tension and peripheral resistance. Those who showed the clinical picture of slightly increased arterial pressure and greater peripheral resistance constituted the group in which cerebral softening, cerebrovascular and coronary accidents, and retinal complications occurred, giving this combination a prognosis as serious as that found in severe hypertension. Manometric blood pressure determination is not to be disregarded, but it must be correlated with the pulse wave configuration in arriving at an accurate prognosis.

Revista Española de Tuberculosis, Madrid

21:125-188 (March) 1952. **Partial Index**

Considerations on Bronchiectases in Childhood. L. López Areal.—p. 125.
*Monaldi's Endocavitary Aspiration and Thoracoplasty. J. Viar Flores.—p. 147.
Problem of Tuberculous Patient in General Hospital. T. Cenvia.—p. 165.

Monaldi's Endocavitary Aspiration and Thoracoplasty.—Many pulmonary tuberculous cavities can be cured by endocavitary aspiration, either alone or in combination with other procedures such as thoracoplasty. Endocavitary aspiration brings about a

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cessation of the local pathological process, with consequent benefit to the patient's general condition, and should precede thoracoplasty when pronounced toxicity is present. Improvement results either from drainage of the cavity or from a modification of the local biological conditions produced by its transparietal perforation. The cleansing of the cavity walls and the arresting of the local and general pathological processes are apparently the most important factors in obtaining a cure, and are sufficient in certain cases; in others, in which loss of lung tissue is extensive and the cavities are long-standing, the cavity walls may have become rigid and closure can be obtained only by surgical intervention. Combined endocavitary aspiration and thoracoplasty is the treatment of choice for cavities exceeding 3 or 4 cm. in diameter with extensive atelectasis or pericavitary condensation. The intervention in such cases should begin with resection of the first two or three ribs in the anterior plane; when cicatrization has occurred, endocavitary aspiration may be instituted, followed by completion of the thoracoplasty in the posterior plane, in one or two stages, according to the extent of the lesions. The endocavitary sound should always be left in place until tomography shows that no appreciable cavity remains. Intracavitary therapy with bacteriostatics such as *p*-aminosalicylic acid and thiosemicarbazone, either alone or combined with penicillin and streptomycin, is useful in most, if not all, of the cases in which Monaldi's endocavitary aspiration is employed.

Revue de Rhumatisme, Paris

19:589-646 (July) 1952. **Partial Index**

Agglutination Reactions in Chronic Progressive Polyarthritis. F. Coste, R. Demanche and M. Bourel.—p. 589.
*Limits and Failures of Corticotropin in Rheumatology. S. de Sèze, A. Ryckewaert, J. Robin and J.-Cl. Renier.—p. 596.
Corticotropin, Cortisone, and Allergic Manifestations. S. de Sèze, A. Ryckewaert, J. Robin and others.—p. 608.

Limits and Failures of Corticotropin in Rheumatic Diseases.—Certain patients with rheumatoid arthritis whose condition has at first been greatly improved by corticotropin (ACTH) suffer spontaneous relapses not caused by a reduction in dosage and not subsequently overcome by the use of larger doses. These are examples of resistance to corticotropin. This phenomenon usually occurs between the fourth and the seventh weeks of treatment and is characterized by the reappearance of clinical manifestations, acceleration of erythrocyte sedimentation rate, and increase in the number of circulating eosinophils. Various explanations have been offered to account for this phenomenon, such as the appearance of an antihormone, a loss of tissue receptivity for the corticosteroids liberated under the influence of corticotropin, adrenal deficiency following a period of hyperactivity, or thyroid disturbances; of these, the neutralization of corticotropin by an antihormone is the most widely accepted. The neutralizing antibody is somewhat unusual and possesses a precipitating action that makes it hard to demonstrate. Its only effect is to neutralize the hormone, and this neutralization must be distinguished from the manifestations of allergy to corticotropin that have already been noted in some cases. Resistance does not appear, either during prolonged treatment or when successive treatments are given, if the corticotropin is administered intravenously by slow perfusion; one of the authors' patients whose condition proved resistant to corticotropin in intramuscular injections of 100 mg. daily was benefited by 25 mg. administered intravenously. Study of this fact will probably throw light on the production of the antihormones and the manner in which they act, or at least on the factors in neutralization of corticotropin when it is injected intramuscularly. A different type of failure in corticotropin therapy occurs when patients without Addison's disease show no response to corticotropin even in comparatively large doses. Not only did no improvement occur in four cases of rheumatoid arthritis treated by the authors with corticotropin but the disease even spread to joints that had previously not been affected. Cortisone often proves effective in cases in which corticotropin has failed. Corticotropin, in spite of its therapeutic value in many conditions, cannot be considered the treatment of choice in rheumatoid arthritis.

Semaine des Hôpitaux de Paris

28:2069-2118 (July 2) 1952. **Partial Index**

*Treatment of Diabetic Coma with Combined Insulin and Cocarboxylase. R. Boulin, F. W. Meyer, M. Guéniot and C. Lapresle.—p. 2069.
Special Form of Diabetic Coma. R. Boulin, F. W. Meyer, M. Guéniot and C. Lapresle.—p. 2076.
One Thousand Roentgenographs in Sciatica Cases Taken in Recumbent Position. S. de Sèze and P. Merle.—p. 2078.
Neurosurgical Treatment of Choreoathetoid and Parkinson's Syndromes. G. Guiot and S. Brion.—p. 2095.

Treatment of Diabetic Coma with Insulin and Cocarboxylase.—The excellent results obtained in cases of diabetic coma treated with a combination of insulin and cocarboxylase indicate that it is the most effective treatment so far discovered. The percentage of cures is high; of 100 unselected patients brought to an emergency center for the treatment of diabetic coma, only 2 died from the coma or its complications, 9 others died from preexisting conditions that were responsible for the development of the coma, and 89, several of whom also had severe concomitant disease, recovered. The amount of insulin needed for recovery is substantially reduced when it is combined with cocarboxylase. Elevation of the carbon-dioxide combining power above 50 vol. % is taken as the basis of cure; this was attained with less than 150 units of insulin in 21 patients. The quantity required was less than that needed by the patient for daily maintenance in three cases, an occurrence never before noted. Treatment has been standardized approximately as follows: 20 units of ordinary insulin are injected hourly until the carbon-dioxide combining power reaches 50 vol. %, less frequently thereafter. Larger doses of insulin should not be given, because the results are no better and the blood sugar may drop abruptly. Administration should be intravenous; disturbance of the peripheral circulation in diabetic coma makes it hard to determine the quantity absorbed when the subcutaneous or intramuscular routes are used. Cocarboxylase is likewise given intravenously every hour in doses of 50 or 100 mg. according to the severity of the condition. The first injection of cocarboxylase is accompanied by 10 mg. of riboflavin; the cocarboxylase and the riboflavin must not be mixed in the same syringe. Four injections of cocarboxylase are given in average cases, and six in severe ones. Prolonged use or massive doses of cocarboxylase may result in hypoglycemia; if more than six injections are needed, they should be given only under the protection of constant blood sugar tests. Equal parts of isotonic glucose, isotonic sodium chloride, and bicarbonate solutions are given by continuous intravenous drop-by-drop infusion at the rate of 1 liter an hour. From 100 to 200 cc. of hypertonic glucose solution should be added to the fluids if the blood sugar level approaches 1 gm. Fluid therapy is continued until the carbon-dioxide combining power exceeds 50 vol. %; 5 liters is the average quantity given. The alkaline reserve and blood sugar are measured every three hours, and the patient is watched continuously by a physician until recovery.

South African Medical Journal, Cape Town

26:541-560 (July 5) 1952. **Partial Index**

Dextran: Valuable Plasma Volume Expander. A. J. Leonsins.—p. 546.
Cervical Rib: Report of Case. E. Gruber.—p. 551.
*Death Associated with Methonium Treatment. B. Goldstone.—p. 552.

Death Associated with Methonium Treatment.—The patient whose case is reported had been treated for several weeks with pentamethonium bromide, 100 mg. being given three times a day. When hospitalized, he presented a picture of intestinal obstruction, which was thought to be due either to internal herniation or to mesenteric thrombosis. Laparotomy revealed that the whole of the small bowel was distended as far as the ileocecal junction; it was pale as though it contained less blood than usual, and the ileocecal valve seemed to be in spasm. The patient died two days after laparotomy in almost complete anuria. Pentamethonium bromide is stated to produce "medical" sympathectomy; in addition to blocking sympathetic ganglia it also blocks the opposing parasympathetic ganglia and thus may cause intestinal paresis and obstruction. The methonium salts are probably not metabolized and are excreted unchanged by the kidney. With renal impairment there is thus danger of accumulation, which would still further restrict the output of urine. This vicious

circle is a lethal mechanism. Treatment consists of infusion of epinephrine or arterenol. Sympathectomy, whether surgical or medical, is indicated only in a minority of patients with hypertension, particularly in those with gross retinopathy and severe headaches. These patients may benefit from the removal of the normal sympathetic impulse stream. Such benefit does not seem to derive from the lowering of blood pressure, since sympathectomy has almost no permanent effect on the level of hypertension. Except for desperate cases of hypertension with severe retinopathy and headaches, the use of the methonium salts is unjustifiable, because they are dangerous drugs.

Strahlentherapie, Munich

87:497-648 (No. 4) 1952. **Partial Index**

Effect of Ultrasonics on Different Developmental Stages of Drosophilia Melanogaster. R. Lotmar.—p. 497.
*General Effects of Ultrasonics on the Organism. A. Tillich.—p. 528.
Tissue Metabolism After Application of Ultrasonics and of Heat. J. Lehmann and R. Hohlfeld.—p. 544.
Thermal and Mechanical Effects of Ultrasonics on Individual Cells. G. Becker and J. Otto.—p. 550.
Ultrasonics in Treatment of Scleroderma. H. Ettl.—p. 567.
*Influence of Ultrasonics on Sudeck's Syndrome. E. Kübler.—p. 575.
Effect of Ultrasonics on the Bone Marrow. E. Gaden.—p. 585.
Studies on Bacteria Subjected to Ultrasonic Treatment, with Special Consideration of Cytological Problems. K. Zapf.—p. 632.

Effect of Ultrasonics on the Organism.—Tillich describes mechanical, thermal, chemical, and biological effects resulting from the application of ultrasonic energy. Some of the biological effects are recognizable only from the symptoms they produce, whereas others can be detected objectively. The latter include decrease in erythrocyte sedimentation rate and reactive leukocytosis or leukopenia. At present, emphasis is placed not on massive or destructive ultrasonic therapy but rather on its activating or stimulating effect. To obtain this stimulating effect, small doses applied for short periods are more effective than intensive prolonged exposures. This is revealed by the reactive leukocytosis, which is a measure of the effect of ultrasonics in the tissue; it occurs whenever ultrasonics are applied. Even the exposure of soft parts to ultrasonics brings about this reactive leukocytosis. Absence of the reactive leukocytosis seems to be correlated with lack of therapeutic effect.

Influence of Ultrasonic Therapy on Sudeck's Atrophy.—Kübler employed ultrasonic therapy in 20 patients with Sudeck's atrophy. In most cases the atrophy had developed following fracture. Ultrasonic therapy was begun from 2 to 44 weeks after the accident. Between 10 and 35 treatments were given over a period of from two to ten weeks. In a few cases not only the area of the atrophy but also the sympathetic trunk was subjected to ultrasonic irradiation. The results were always good or excellent. Pain and edema that had existed for weeks or months subsided after an average of eight ultrasonic irradiations. Improvement in mobility and recalcification followed soon. It is assumed that the treatment releases the arteriolar spasm and counteracts the hyperemia and the related disturbances.

Ugeskrift for Laeger, Copenhagen

114:879-912 (July 3) 1952. **Partial Index**

*ACTH and Cortisone in Treatment of Rheumatoid Arthritis: Preliminary Report. F. Fischer.—p. 879.
Poisonous Agents for Weed and Pest Control. A. Harrestrup Andersen, J. Andersen and J. Frost.—p. 885.

Corticotropin and Cortisone in Treatment of Rheumatoid Arthritis.—Short courses of corticotropin (ACTH) or cortisone or both were given to 34 patients with rheumatoid arthritis, mainly of severe refractory type. The immediate effect of the 45 initial courses was notable improvement or remission in 23 cases. Follow-up from 4 to 12 months later revealed that improvement or remission had been maintained in only 6 of the 32 patients not receiving hormonal treatment at the time of the examination. Reclassification of functional ability on follow-up showed that two additional patients had become able to work, but on the other hand the completely incapacitated group was increased by three patients. Two patients were maintained in partial remission on from 25 to 50 mg. cortisone daily, but 9 of 11 patients receiving cortisone for from one to six months showed slight improvement or no improvement. Eleven patients were given gold treatment during the observation period, three simultaneously with cortisone; no synergistic effects were noted. Fischer finds that corticotropin and cortisone in comparable doses seem to have the same clinical effect. On the basis of the preliminary results the indications for use of corticotropin or cortisone in rheumatoid arthritis are outlined. The author stresses that the preparations involve certain risks and should be employed only in carefully selected cases in which other forms of treatment have failed. Continuous treatment should be applied only in selected cases where improvement can be attained by daily doses of 50 to 75 mg. cortisone, but hormone-free periods should be introduced or cortisone alternated with corticotropin.

114:913-950 (July 10) 1952. **Partial Index**

"Ketogan" as Analgesic in Labor: Preliminary Report. M. Møgelvang.—p. 917.
Use of "Ketogan" in Medical Department. K. Schmith.—p. 918.
Case of Erythromelalgia Treated with Benzyl Imidazolin Hydrochloride (Vasodil). P. Kølle-Jørgensen.—p. 919.
Rhinophyma. J. Weber.—p. 921.
*Variations in Number of Circulating Eosinophile Cells in Diabetic Patients. E. Kjems.—p. 924.
Four Cases of Simple Spontaneous Pneumothorax Treated by Induced Exudative Pleurisy. J. A. Nielsen.—p. 931.

Variations in Number of Circulating Eosinophils in Diabetics.—Kjems' main impression from his investigations is that the eosinophil count is somewhat higher and more fluctuating in diabetic patients treated with insulin than in those not treated with insulin and in normal persons. The insulin administration seems to influence the number of circulating eosinophils, which is perhaps an expression of variations in the function of the adrenal cortex. If the results are to be explained as due to action on the corticotropin-cortisone system, decreased, or at all events a qualitatively altered, function of the adrenal cortex is to be assumed. The possibility cannot be excluded that the eosinophilia in diabetic patients is caused by allergy to insulin, but such allergy is thought to be of rare occurrence. A disturbance in the hormonal interplay, especially with regard to the corticotropin-cortisone system, must be considered in seeking the pathogenesis of vascular complications in diabetes.

Zeitschrift für Immunitätsforschung, Jena

109:289-424 (Nos. 4 & 5) 1952. **Partial Index**

Recent Investigations on Erysipelas and Development of Prophylactic Vaccination Against Swine Erysipelas. A. Demnitz.—p. 309.
Epidemiology of Diphtheria in Adults in Düsseldorf. W. Kikuth and L. Grün.—p. 319.
Diphtheria Bacilli and Diphtheroids in Human Organism. E. G. Dresel.—p. 328.
Atypical Forms of Diphtheria Bacillus and Their Differentiation from Diphtheroids. H. Zirkel.—p. 340.
Immunity and Immunization in Hoof and Mouth Disease. K. Trautwein.—p. 349.
*Transmission of Leptospira Icterohemorrhagiae by Ornithodorus Moubata. H. Schlossberger and H. Langbein.—p. 366.
Results and Experiences with Vi Agglutination. S. Ortel.—p. 409.
Chemotherapeutic Experiments with New Tuberculostatic Drugs of the *p*-Aminosalicylic Acid Series and the Thiosemicarbazones. K. W. Jötten and C. van Marwyck.—p. 415.

Transmission of Leptospira Icterohemorrhagiae by Ornithodorus Moubata.—After general remarks on insect-borne diseases, the authors of this paper describe studies that they carried out to ascertain whether leptospirae are transmitted by insects. They made their studies with the tick, Ornithodorus moubata, and with a strain of Leptospira icterohemorrhagiae, the cause of Weil's disease. They found that Ornithodorus moubata, when feeding on a guinea pig infected with the leptospirae of Weil's disease, absorbs a sufficient number of leptospirae to infect another guinea pig. Ornithodorus moubata is also capable of harboring the leptospirae for some time, and it is believed that the leptospirae multiply within the tick. The leptospirae enter the ovaries of the tick and penetrate the eggs. Infected ticks transfer leptospirae to healthy hosts while obtaining a blood meal from such hosts. The authors suggest that while this mode of transmission may be of no importance in the epidemiology of human leptospiroses, it is possible that leptospiroses are spread among dogs in this manner rather than by direct contact from dog to dog.

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BOOK REVIEWS

The Cyclopedia of Medicine, Surgery, Specialties. Editor-in-Chief: George Morris Piersol, M.D., Professor of Medicine and Director of Center for Research and Instruction in Physical Medicine, Graduate School of Medicine, University of Pennsylvania, Philadelphia. Assistant editor: Edward L. Bortz, M.D., Associate Professor of Medicine, Graduate School of Medicine, University of Pennsylvania. In fifteen volumes, including index volume. Third edition. Cloth, loose-leaf. $195 per set. Pp. [14,460], with illustrations. F. A. Davis Company, 1914-16 Cherry St., Philadelphia 3, 1952.

The new cyclopedia is published in 14 loose-leaf volumes of approximately 1,000 double-column pages each. It is attractively printed on tough opaque paper in large type. The volumes are bound in durable dark blue de luxe morocco-grained cloth, stamped in gold. In its new form the cyclopedia presents the well-recognized conveniences of a loose-leaf publication, simplifying the problem of keeping the material up-to-date. The subject matter is alphabetically arranged. It is planned to bring out each year a substantial number of pages of new material. The annual service volume will provide the more important advances in the various fields.

The aim of the cyclopedia is to provide a complete reference library sufficiently scientific to answer the needs of medical students, interns, residents, teachers, investigators, general practitioners, and specialists. Particular attention has been assigned to the subject of therapy. Such fields as dietetics, irradiation, radioactive isotopes, physical and occupational therapy, and endocrine therapy have received a more or less complete consideration. The great advances in thoracic and cardiac surgery required the inclusion of special sections. The imposing list of editors and contributors attest to the quality of the reading matter. The separate index volume makes it possible to look up any desired subject without unnecessary waste of time. This third edition of the cyclopedia, thoroughly revised, represents a huge effort well accomplished. It will undoubtedly fulfill its aim.

Physics and Medicine of the Upper Atmosphere: A Study of the Aeropause. Editors: Clayton S. White, M.D., Director of Research, Lovelace Foundation for Medical Education and Research, Otis O. Benson, Jr., Brigadier General, USAF (MC). Proceedings of symposium on physics and medicine of upper atmosphere held at San Antonio, Texas, November 6, 7, 8, 9, 1951, sponsored by Air University School of Aviation Medicine, Randolph Field, Texas. Arranged by Lovelace Foundation for Medical Education and Research, Albuquerque, New Mexico. Cloth. $10. Pp. 611, with 195 illustrations. University of New Mexico Press, Albuquerque, 1952.

The 42 sections of this book all deal directly or indirectly with medical problems involved in the recent development of rocket craft capable of operating in a complete vacuum. Such craft will soon be able to carry occupants to heights where air is practically absent, and this has both advantages and disadvantages. Space medicine, as considered by the authors, is divided logically into (1) problems of pressure, temperature, and oxygen supply, (2) problems of ionizing radiations, meteoric masses, and other hazards of interplanetary space, and (3) problems of acceleration and weightlessness. The design of such craft is reviewed from the standpoint of human physiology, and a particularly dramatic chapter in this respect is the one entitled "The Return of a Winged Rocket Vehicle from a Satellite Orbit to the Earth."

The 38 specialists who participated in this symposium have apparently overlooked nothing. Every detail of mathematics, chemistry, physics, and biology has been minutely calculated, probabilities are considered, and, except for a moment of confusion between "precision" and "precession" on page 419, there is perhaps not a single mistake in the entire volume. The amount of information gained from recent research and concentrated in the tables is overwhelming. Particularly interesting are the 46 plates in the appendix. The book is supplied with a good bibliography and is well indexed. It is a pioneer work that must surely become a classic.

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

Connective Tissues: Transactions of the Second Conference, May 24-25, 1951, New York, N. Y. Edited by Charles Ragan. Cloth. $3.50. Pp. 190, with 80 illustrations. Josiah Macy, Jr., Foundation, 565 Park Ave., New York 21, 1952.

The Macy Foundation Conferences are designed to promote meaningful communication between scientific disciplines on specific subjects of interest. By this exchange of information new knowledge gained in one field of study may be imparted to others and thus speed their progress and prevent reduplication of effort. This type of meeting produces provocative free discussion and delineates the problems to be investigated and clarified. In this volume this method of approach is used in considerations of ground substance, of the chemical morphology of elastic fibers, of pain mechanisms in connective tissues, of repair processes in connective tissues, and of regression of scar tissue.

The highly conjectural state of our knowledge of connective tissue morphology and physiology is nowhere better indicated than during Gersh's presentation on ground substance. Attempts at definition of what is meant by collagen revealed a divergence of opinion as to whether the term was referable to one substance or a class of substances. The problem of defining reticulin fibers and differentiating them from collagen also aroused debate. Gersh proposed that ground substance be defined as having four properties: It is optically homogeneous, but its consistency varies from a gel-like state to a more watery state. It is stainable by the Hotchkiss procedure, probably because of its carbohydrate content. It is slightly stained by intravenous injection of the host with Evans blue. It may exhibit metachromatic staining characteristics under certain conditions. Gersh thinks that ground substance must be considered as coextensive and interconnected throughout the body with tissue fluid. He reasons from the enumerated characteristics that ground substance is a variably polymerized carbohydrate-protein complex. Under conditions that produce marked depolymerization, a mucoprotein has been detected in the blood plasma.

In areas of rapid growth, Gersh found that the ground substance consistency surrounding such areas became more fluid, soft, and fragile. This was true in areas surrounding rapidly growing tumors, the Graafian follicle, and the developing eye of the chick embryo. This suggests to Gersh that cancer metastasis results when tumor emboli lodge in numerous sites, dying or remaining quiescent in most areas, but in a few places finding a favorable environment where the emboli cause the local connective tissue cells to alter the ground substance, thus permitting survival and growth of the implant. In anaphylactic reactions, changes in intravital staining with Evans blue were characteristically found in the shock organ. Lansing demonstrated that the elastin of aged aortas differs from that found in young aortas by containing more calcium and aspartic and glutamic acids. He also confirms the work of Bálo and Banga in isolating the enzyme elastase from crude pancreatin. On exposure to elastase, elastin disappears into an opalescent solution, which apparently contains lipids. This monograph makes most interesting reading for internists, histologists, pathologists, and investigators.

X-Ray Protection Design. By Harold O. Wyckoff and Lauriston S. Taylor. U. S. Department of Commerce, National Bureau of Standards Handbook 50. Paper. 15 cents. Pp. 36, with illustrations. Superintendent of Documents, Govern. Print. Off., Washington 25, D. C., 1952.

This book contains basic data and principles for guidance in designing shielded roentgen installations. The assumption is a permissible exposure rate of 0.30 r per week, with qualifications set forth on page 2; it is noted that "this is not a tolerance dose, because it is not known that the body can tolerate any radiation." In addition to 18 valuable tables there are sample design problems, methods of computing barriers for real installations, and some helpful references. The book is indispensable for anyone concerned in laying out plans for fluoroscopy, radiography, or therapy.

An Inventory of Social and Economic Research in Health. Paper. $1.50. Pp. 197. Health Information Foundation, 420 Lexington Ave., New York 17, 1952.

This list of social and economic research projects is designed to bring together in one publication pertinent and current data on investigations of certain types of health problems. This publication is an annotated bibliography, as claimed in the preface, in a very peculiar sense. Many of the research projects described are still in process. An annotated bibliography ordinarily deals only with finished studies that have been published. The projects covered, numbering 296 in all, relate to the sociologic, economic, and psychological factors of health; no biological and technical medical developments are included. Certain basic information about each study or survey, whether completed or in process, is given. This information includes (1) nature of problem, (2) geographic area, (3) data and analysis, (4) project staff, (5) research organization, (6) sponsors, (7) cooperating agencies, (8) duration of project or terminal date, and (9) publications.

The list includes surveys of health levels, facilities, services, and personnel; studies that correlate levels of health between social, psychological, and economic factors, as well as various health programs and the degrees of participation in them; investigations that indicate the extent of health knowledge and education and researches in the field of industrial health. These are the projects of federal, city, and state agencies, bureaus, and departments, schools, hospitals, insurance companies, and many other foundations, institutes, and organizations that contribute research to health information. The material is indexed by a list of the project personnel, both individual persons and organizations, and by geographic areas of the investigations cited to provide expedient means of locating studies of interest. It is a valuable guide to research and health workers as well as to students and teachers of sociology, psychology, economics, and related subjects.

Survey of Clinical Pediatrics. By Lawrence B. Slobody, M.D., Professor of Pediatrics, New York Medical College, New York. Cloth. $7.50. Pp. 471. McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 36; Aldwych House, Aldwych, London, W.C.2, 1952.

This book is prepared in the currently popular outline form used in many of the less-than-textbook presentations in pediatrics. The author's competency and familiarity with the field are readily apparent in the completeness of coverage of all subjects of practical importance in the development and diseases of children. Standards of growth are briefly presented, as are fundamentals of infant feeding, electrolyte therapy, and antibiotic therapy. The book is primarily devoted to concise discussions of the various disease entities of the body systems. No disorder of any consequence appears to have been omitted, and few of real rarity are included. The information on each condition includes a tabulation of etiology, clinical features, differential diagnosis, laboratory tests, and brief notes on therapy. No prescriptions, laboratory methods, or standards are appended. Each chapter is followed by thought-provoking review questions. The book's principal usefulness appears to be for diagnostic reference. Its careful organization and tabular outline form make it also an excellent review source for the field of pediatrics. As such, this volume is of particular interest to the general practitioner and medical student.

Culdoscopy: A New Technic in Gynecologic and Obstetric Diagnosis. By Albert Decker, M.D., D.O.G., F.A.C.S., Clinical Professor of Gynecology and Obstetrics, New York Polyclinic Medical School and Hospital, New York. American monograph series. With foreword by Richard W. TeLinde, M.D. Paper. $3.50. Pp. 148, with 50 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, 1952.

This small volume is fascinating. In the light of the history of man's attempts to view the workings of the pelvic organs in health and disease, Dr. Decker's ingenious application of an endoscope inserted into the cul-de-sac with the patient in the knee-chest position, thus producing pneumoperitoneum, and the apparent simplicity of the procedure will arouse envy in the less imaginative and less persevering. Regarding the place of the culdoscope in pelvic examination, it is stated clearly and concisely in the foreword by Dr. TeLinde that it is "not just another gadget, but a most effective gynecologic diagnostic instrument." However, the tyro's desire to utilize this new aid as a short cut for the long-accepted methods is frowned on by the author, who, in spite of his enthusiasm, comments so commendably, "Culdoscopy is not employed to confirm the obvious."

This is the keynote of the applicability of the method; it is a means of establishing an accurate diagnosis in the obscure, baffling case in which time permits such study and in which much harm may be done by hasty, indiscriminate laparotomy or even greater hazard incurred by delay. It must be reiterated, however, that culdoscopy is absolutely contraindicated in the presence of active or recent hemorrhage; and it is not an office procedure. Dr. Decker describes clearly the indications for and the technique of culdoscopy, emphasizing the early diagnosis of ectopic pregnancy, endometriosis, and obscure problems in infertility. Fully as stimulating are his brief references to its application in other problems in pelvic physiology and pathology. The culdoscope and Dr. Decker's handbook should be used in the training of specialists in gynecology and should be available generally in hospitals where much female pelvic surgery is done.

A Student's Radiological Mathematics: Elementary Mathematics Applied to Medical Radiology. By L. A. W. Kemp, B.Sc., F.Inst.P., Physicist to the London Hospital, London. Cloth. 55; 21s. Pp. 315, with 128 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto, 2B, 1951.

Much conscientious work has gone into the preparation of this attractive volume. It will be helpful to medical students who have reached the point where they wish to specialize in radiology or physical medicine and discover that their groundwork is insecure. The author takes practically nothing for granted as to his reader's achievements in algebra and geometry. He takes up various quantitative problems relating to roentgen rays and radioactivity in the order of their difficulty, beginning with the calculation of areas of applicators, going on to the use of a slide rule in calculating the transmission of absorbing materials, and ending with the construction of nomograms for determining treatment times.

A student who works all of the problems with care will profit greatly. The necessary data are all supplied, and the answers can be verified from the appendix, which contains further tabulated information with some illuminating notes on the differential and integral calculus. As regards the calculus, American readers may be confused by the author's use of the word "gradient" (which ought to be saved for the special meaning given to it in vector analysis) in place of "slope" (the usual word in this country for the direction of a plane curve at a given point). The collection of past examination questions (pages 295-298) is an interesting feature, and there is a good index. The book is to be recommended as being suited admirably to its purpose.

An Introduction to Abdominal Diagnosis: A Handbook for Students and Practitioners. By Alan E. Lee, M.D., F.R.C.S., F.R.A.C.S., Senior Visiting Surgeon, Brisbane Hospital, Brisbane. Cloth. 32/6. Pp. 176. Australasian Medical Publishing Company, Ltd., Seamer St., Glebe, Sydney, N.S.W., 1951.

The author has been impressed with the fact that in the study of diagnosis the application of inductive reasoning has been neglected. He stresses the lack of interest in the mechanisms of symptom production. He believes that too much stress has been placed on physical examination and ancillary methods of examinations and too little emphasis on specific symptom analyses. He discusses abdominal pain under the four following headings: the upper abdominal midline pain syndromes, the midabdominal pain syndromes, the lower abdominal pain syndromes, and the lateral abdominal pain syndromes. At times this classifying gets somewhat involved because of overlapping of symptom complexes; however, it is an interesting approach and has distinct values. The conflicting theories regarding deep abdominal pain and tenderness as an abdominal sign are admirably discussed. It is unfortunate that the author has not included a few simple diagrams to enhance the text. The book can be recommended to anyone interested in abdominal diagnosis. It should be used not only as an introduction to the subject but as a reference book as well.

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The Pathogenesis and Treatment of Thrombosis: With a Clinical and Laboratory Guide to Anticoagulant Therapy. By Irving S. Wright, M.D., Professor of Clinical Medicine, Cornell University Medical College, New York. Modern medical monographs 1. Cloth. $3. Pp. 78, with 27 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1952.

This volume is based on the Twelfth Annual George E. Brown Memorial Lecture, presented by the author before the American Heart Association, June 8, 1951. The book presents a clear exposition of current hypothetical views concerning the various factors of blood coagulation in relation to the phenomenon of thrombosis. The gaps in existing knowledge are outlined, together with points that require further investigation. Anticoagulant drugs, useful or under investigation, for the treatment of thromboembolic conditions are discussed individually in a critical manner. A section on clinical and laboratory procedures, which is included as a guide to anticoagulant therapy, appears after the main text. Bibliographies of references cited are appended to both sections of the book, with a general index at the end. The illustrations are clear and the typography excellent. Typographic errors appear on page 25, where the intended word "dose" appears as "does," and on page 42, where there is the misspelling "thereapy." This book should serve as a handy review and guide to the current theories and to the future development of knowledge concerning the origin and control of intravascular clotting. It can be recommended to all clinical students and investigators of the subject.

Battle Casualties: Incidence, Mortality, and Logistic Considerations. By Gilbert W. Beebe, Ph.D., Division of Medical Sciences, National Research Council, and Michael E. De Bakey, M.D., Professor of Surgery, Baylor University, College of Medicine, Houston, Texas. Cloth. $10.50. Pp. 277, with 38 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto, 2B, 1952.

This monograph presents data and concepts on the incidence, mortality, evacuation, and hospitalization of battle casualties and on the need for medical specialists in forward areas. The statistical data used in this study were obtained during World War II and have been analyzed carefully by the authors. An enormous amount of work is reported in this volume. It is perhaps the finest volume of its type and will undoubtedly be the best source of factual information on battle casualties from the official records and reports of the United States Medical Service. It includes Dr. Edward D. Churchill's analysis on the evacuation of wounded. The authors deserve the thanks of all those interested in military medicine.

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Die Radio-Isotope: Eine einführende Darstellung ihrer biologischen und medizinischen Anwendung. Von Dr. med. J. Hiller und Dr. med. A. Jakob. Band 28, Sonderbände zur Strahlentherapie, herausgegeben von Prof. Dr. Hans Meyer. Cloth. 32 marks. Pp. 256, with 64 illustrations. Urban & Schwarzenberg, Thierschstrasse 11, Munich 22; Meinekestr. 13, Berlin W. 15, 1952.

This relatively small book is the first of its kind in the German language. It is a good and useful book, written in a simple and comprehensible style for physicians, biologists, and laboratory workers who have some knowledge of physics and mathematics. There is a good introductory chapter on the mathematical and physical basis of isotopes, and the illustrations throughout the book have been carefully chosen. Some of the chapters are excellent as, for instance, the one on autoradiograms. It is regrettable that in so fine a book a few things have been omitted. For example, there is no mention of radioactive gold, an isotope important in research and experimental therapy. The bibliography is given from 1947, and is relatively complete for the years 1949 to 1951.

Handbook of Pharmacology for Nurses. By Robert Shestack, Ph.G.R.P., P.T.R., Instructor of Pharmacology, School of Nursing, and Director of Department of Physical Therapy, Washington County Hospital, Hagerstown, Maryland. Cloth. $3. Pp. 171. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, 1952.

This book should prove to be an adequate and useful outline of pharmacology for student nurses. Unfortunately, proprietary and official names are used indiscriminately in the text, and the table in chapter 23, listing common or proprietary names and their official equivalents, contains numerous errors.

History of the Royal Medical Society 1737-1937. By James Gray, M.A., F.R.S.E. Edited by Douglas Guthrie, M.D., F.R.C.S.E. With foreword by Sir Robert Hutchison, Bart., M.D., LL.D. Cloth. 42/-. Pp. 355, with 7 illustrations. Edinburgh University Press, Old College, South Bridge, Edinburgh 8; [sole agent: Oliver & Boyd, Ltd., Tweedale Court, 14 High St., Edinburgh 1], 1952.

Although the Royal Medical Society has been in existence more than 200 years, this book apparently is the first history of that organization that has been published. The author, who was not a physician, derived a special interest in the society from his grandfather, who for many years was its honorary treasurer and general business advisor. He reviews the origin and growth of the society in detail and the early history of the Edinburgh Medical School, a few of whose students laid the foundation of the society at informal meetings where dissertations written by themselves were discussed. The society was formally constituted in 1737. Among its many members of renown have been Charles Darwin, Oliver Goldsmith, Joseph Lister, Thomas Addison, John Fothergill, Benjamin Rush, Theodor Billroth, and James Baker, a resident with Lister, and a man of very high principle, of whom it is said that he would not subscribe to the expenses of a dinner where wines were served. To balance this omission, Baker presented to the society a clock, which apparently is still on the mantlepiece. Other renowned members were Louis Pasteur, William Osler, Sir Jonathan Hutchinson, Robert Koch, Lord Kelvin, Sir Humphrey Rolleston, Harvey Cushing, and Sir Auckland Geddes, former ambassador to the United States. Nevertheless, the Royal Medical Society is said to be primarily, but not purely, a student society, and, while there is the senior element, it is never intrusive but always careful to adhere to sound traditions. This book is of great interest as an historical document, and particularly so to the British medical profession.

Circulatory Dynamics: Physiologic Studies. By Carl J. Wiggers, M.D., Sc.D., F.A.C.P., Professor of Physiology and Director, Department of Physiology, School of Medicine, Western Reserve University, Cleveland, Ohio. Modern medical monographs 4. Cloth. $4. Pp. 107, with 44 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1952.

The author of this book, a recognized authority on circulatory physiology, presents a highly objective review of the experimental aspects of circulatory dynamics derived from three of the author's lectures on the subject. These form the basis of the three chapters comprising the monograph. The first chapter deals with basic hemodynamic principles, the second with factors that determine cardiac performance, and the third with the dynamics of ventricular contraction. The basic laws and experimental variations in circulatory dynamics are illustrated by diagrammatic figures. The changes peculiar to circulatory disorders and abnormalities are discussed in conjunction with each of the phases of the subject that is presented. Each chapter is concluded by a summary and bibliography of references cited. A subject index is included at the end of the book. The text is singularly free from typographic errors, and the format is pleasing. The book will be useful to clinical investigators and to physicians with special interest in the circulatory dynamics of cardiovascular disorders.

The Clinical Use of Fluid and Electrolyte. By John H. Bland, M.D., Assistant Professor of Medicine, University of Vermont College of Medicine, Burlington. American Monograph Series [2]. Paper. $6.50. Pp. 259, with 75 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, 1952.

The clinical use of fluids and electrolytes has become a routine procedure following surgery and is also relied on as supportive therapy in many medical conditions. Yet many clinicians are not conversant with the physiological and pathological effects of these agents. The necessity for maintenance of electrolyte and fluid balance is generally recognized, but the know-how in correcting abnormalities with reasonable safety must be acquired. This varityped monograph attempts "to provide a practical, usable guide to the recognition and treatment of the various fluid and electrolyte abnormalities that may arise in medical and surgical patients." It also considers the special problems of the geriatric patient. Despite the limitations in legibility due to the type, this is an excellently illustrated, practical review with sufficient bibliographic references to permit more thorough reading on any subject of interest. This text should prove valuable to internists, surgeons, general practitioners, and students.

QUERIES AND MINOR NOTES

TESTS FOR ADRENAL CORTICAL INSUFFICIENCY

To the Editor:—*I would like to know the comparative values the Thorn test and the Robinson-Power-Kepler test for adrenal insufficiency.* *Julius L. Boiorsky, M.D., Charleston, W. Va.*

Answer.—The Thorn test for adrenal cortical insufficiency is generally regarded as the four hour corticotropin test in which the criterion of adrenal cortical function used is the percentage fall in the number of circulating eosinophils (*J. A. M. A.* **137**:1005 [July 17] 1948). The results obtained with this procedure are more equivocal, however, than those in the more refined 48 hour corticotropin test or the 8 hour test with intravenously administered corticotropin, both also described by Thorn (Recent Progress in Hormone Research, vol. 4, edited by G. Pincus, New York, Academic Press, Inc., 1949; *New England J. Med.* **244**:796, 1951). These latter tests use urine steroid excretion and the change in circulating eosinophils as criteria. The saliva test for adrenal cortical insufficiency was described by Frawley and Thorn (Proceedings of the Second Clinical ACTH Conference, edited by J. R. Mote, vol. 1, 1951) and has as its basis the physiological considerations promulgated by Conn in his sweat electrolyte composition test for adrenal cortical insufficiency (*Arch. Int. Med.* **83**:416 [April] 1949). In the saliva test, mixed saliva is simply obtained in the fasting state and specimens are collected over two consecutive 10-minute periods. The sodium and potassium concentrations are obtained. In normal persons the ratio of sodium to potassium is about 1.3, while in untreated adrenal cortical insufficiency, the ratio generally averages between 3 and 5 and may be as high as 8. Conversely, in excessive adrenal cortical function (Cushing's syndrome) the ratio averages 0.5. The Robinson-Power-Kepler test (*Proc. Staff Meet., Mayo Clin.* **16**:577, 1941) has long been utilized as a means for determining adrenal cortical function. It is influenced by extra-adrenal factors, however, and is not preferred to the newer and more precise methods described.

MYOCARDIAL INFARCTION

To the Editor:—*What percentage of patients with acute myocardial infarction show no abnormality in electrocardiograms (leads 1, 2, 3, aVr, aVl, aVf, and V, through V_6)? Of those who show electrocardiographic changes during an episode of acute myocardial infarction, what percentage will have normal electrocardiograms one year later?*

M.D., Connecticut.

Answer.—Since the introduction of multiple chest leads and aV limb leads into routine electrocardiographic examinations, the chances that the electrocardiogram will remain completely normal in the course following recent myocardial infarction have become extremely small. Possible diagnostic failures can be further reduced by repeated and serial tracings. Even if the observed changes remain atypical, the fact of the appearance of electrocardiographic alterations should be considered sufficient to confirm the impression obtained on a clinical basis. Recent myocardial infarction, however, may often be missed if there has been a previously abnormal electrocardiogram. This refers mainly to instances of left heart strain and left bundle-branch system block and to tracings indicating previously healed myocardial infarction. Restitution to normal is seen frequently and occurs within a short time in cases in which the diagnostic alterations are restricted to S-T-T and do not involve the QRS complex (absence of Q waves).

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

PULMONARY FIBROSIS AND BERYLLIUM

To the Editor:—*In a case of advanced pulmonary fibrosis and emphysema, could the patient's exposure to dust of steel containing beryllium be an etiological factor? His occupation is that of a "wet" grinder.*

Charles H. Kosmaler, M.D., Elmira, N. Y.

Answer.—This question is not a simple one to answer, because some cases of disease arising from exposure to certain beryllium compounds apparently have resulted from a relatively low exposure to the chemical. It should be determined whether there were any dust producing operations near the patient in which beryllium was in use and whether or not the steel contained more than 1% or 2% beryllium. To date, alloys with less than 4% beryllium content have not been known to produce disease. However, because of the delay in onset of symptoms following a period of beryllium exposure, further experience may prove that the alloys containing small amounts of beryllium do produce disease. A test for beryllium in the patient's urine should be made by a laboratory equipped to do such studies, to establish definite exposure. The length of time of exposure as well as the points mentioned above would have some bearing on the diagnosis. Beryllium could not be ruled out as a causative factor in the case mentioned without considerably more information being obtained.

REPEATED SORE THROATS

To the Editor:—*A boy, aged 19, has had sore throats every two or three months for about 12 years. He has had a tonsillectomy and an adenoidectomy, allergic rhinitis, mild eczema of the fingers, and pruritus ani. On examination of the throat, there is a cream colored area in his right posterior faucial area, no tonsillar tags, and no membrane. During the attacks he is afebrile. Treatment has consisted of sulfonamide or penicillin troches. Is there any other treatment recommended? Should he get a "penicillin course" in big doses during an attack?*

M.D., Florida.

Answer.—Before instituting further treatment it would be advisable to establish a diagnosis. Bacteriological smears and cultures from the affected site might throw light on the etiology. In view of the allergic factors present, a study of the background of this phase should be undertaken. A "penicillin course" at this time would be unwise because of the presumably noninfectious course of the disease. In an era of uncontrolled usage of antibiotics and other chemotherapeutic agents, and antihistaminic drugs, there is greater need than ever for providing a rational basis for therapeutics.

CHEMICAL PNEUMONITIS

To the Editor:—*A 45-year-old man has had several severe bouts of pneumonia of the virus type. He is frequently exposed to anhydrous ammonia, used as a fertilizer, and an insecticide called ceresan.® Should he use protection against inhaling these, and, since pneumonia followed severe exposure on two occasions, do these agents cause pneumonia?*

E. G. McCarthy, M.D., Hale Center, Texas.

Answer.—Ceresan® is ethyl mercuric phosphate and is thus one of the newer and more dangerous organic insecticides. Both this substance and ammonia hydroxide are capable of exciting chemical pneumonitis, although the predilective area is the upper respiratory tract. It is a frequent observation that pneumonia of viral or bacterial type is consequent to a preceding chemical irritation. Thus, for further example, infectious pneumonia sometimes follows pulmonary damage from the nitrogen oxides. In general, chemical damage to the respiratory tract may contribute to the probability of infectious pneumonia.

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LUNG SHADOWS IN CHILDREN

TO THE EDITOR:—*I have observed striking correlation between barely palpable lymph nodes on the neck and under the armpits and "spots" in both lungs, mainly nodular infiltrates as shown on x-ray films, in young children. These lymph glands are soft and resemble in no way the large, hard, scrofulous glands seen in older children. They do not enlarge much but persist for months or years, becoming gradually smaller and harder. The association has been noted in more than 100 children whose ages ranged from a few days to a few years. I wonder what pictures are obtained by mass surveys of very young babies, and whether the infection should be considered as congenital in such an instance. Only twice were Ghon nodules found, but several times there were larger infiltrates or lobitis.* *A. Barlovatz, M.D., Stanleyville, Belgian Congo.*

ANSWER.—From the description it is assumed that demonstrable lesions have not been observed in the nose, mouth, or pharynx at any time in the course of the disease. Since there are so many conditions that result in palpable cervical and axillary lymph nodes, the best procedure is to remove some of these nodes as early as they can be palpated to determine the gross and microscopic pathology. Bacteriological studies of their contents, including careful search for parasites and fungi, may be revealing. If the etiological agent is not found in this way, biopsy of nodes at different stages in the evolution of the condition might bring to light some characteristic finding.

Inasmuch as x-ray shadows of pulmonary lesions are never pathognomonic and since children usually do not expectorate, gastric lavage or, even better, bronchial lavage for bacteriological determinations would seem to be indicated. Even examination of stools for parasites should be considered. In recent years, it has been found that a large variety of diseases produce pulmonary manifestations, including some of the parasites.

Tuberculosis in young children usually does not take the course described; however, it would be worth while to administer the tuberculin test, and, if there is no reaction when the disease is first detectable, periodic testing at monthly intervals should be done to determine whether sensitivity to tuberculoprotein develops at any time during the course of the disease. Skin tests with fungus antigens for those pathogenic fungi that are known to exist in the area may also be helpful. In some parts of the world parenchymal calcific deposits, at one time thought to represent Ghon tubercles, have been found to be due to fungus infections more often than tuberculosis. The larger infiltrates and lobitis may be due to tuberculosis, but there are many other conditions that cast such x-ray shadows.

In most mass x-ray surveys babies have been excluded, inasmuch as these surveys have been intended to find chronic contagious tuberculosis, which rarely occurs in babies and young children. Until the etiology of this condition is determined, it is impossible to state whether it is congenital.

VITAMIN D-RESISTANT RICKETS

TO THE EDITOR:—*I am treating a 13-month-old girl who has vitamin D-resistant rickets. She has a toxic reaction (weight loss, vomiting, nausea, and weakness) if given more than 25,000 units of vitamin D_2 (activated ergosterol) daily. Some healing has been obtained with this dosage, but radiographically some activity of the rachitic process remains. Would some other form of vitamin D prove less toxic?*

George H. Barmeyer, M.D., Missoula, Mont.

ANSWER.—Vitamin D_2 (activated ergosterol) has proved to be the most satisfactory drug in the treatment of vitamin D-resistant rickets. The information provided about the 13-month-old girl with vitamin D-resistant rickets does not permit accurate appraisal. Experience has often shown that there is a narrow margin between the maximal therapeutic and the toxic dose of vitamin D_2. In most reported cases the dose has exceeded 25,000 units daily. It would be interesting to determine the degree of healing and the duration of treatment that result from smaller doses of vitamin D_2, since radiological evidence of healing cannot be detected until after several weeks of continuous therapy. It is unlikely that other forms of vitamin D would be more effective than vitamin D_2. If other forms of vitamin D were to be given in doses sufficient to produce healing, it is likely that they, too, would produce reactions of toxicity.

Forms of vitamin D for injection have been used more in Europe than in America. In the majority of instances, they have been used as a prophylactic measure or as an effort to simplify the control of mild rickets. Therefore, the injection of various forms of vitamin D would be a matter of convenience rather than effectiveness. The problem presented in vitamin D-resistant rickets is not one of absorption, since the content of vitamin D in the blood is high after oral administration of the agent. Oral medication has the additional advantage of being much more easily regulated. The warning of reactions of toxicity to vitamin D should be heeded, and the dose should be promptly reduced, since permanent damage to the kidneys may result from over-dosage. Occasionally, manifestations of toxicity and delay in healing, with sudden reduction in physical activity, develop in patients with vitamin D-resistant rickets whose condition previously had been well stabilized by vitamin D_2.

The possibility that the patient has rickets caused by some other abnormality should be considered. Rickets has been associated with various lesions of the renal tubules, such as Fanconi's syndrome and chronic acidosis resulting from inability of the tubules to retain a fixed base or to produce ammonia. Rickets secondary to renal tubular lesions may readily produce the problem described, if large doses of vitamin D_2 are administered. In cases of rickets described as being associated with conditions characterized by poor absorption of fat, the rickets conceivably may have appeared resistant to vitamin D given in ordinary doses in oily solution, and yet the vitamin, given as vitamin D_2, may have caused reactions of toxicity. This would not appear likely, however, since most of the commercial vitamin preparations now in use are water-soluble. Occasionally, there is considerable difficulty in distinguishing vitamin D-resistant rickets from renal rickets, chondrodystrophy, dyschondroplasia, or osteitis fibrosa cystica on the basis of clinical and roentgenographic evidence alone. Here again, large doses of vitamin D_2 would result in reactions of toxicity without abatement of the bone lesions.

CARDIAC PAIN

TO THE EDITOR:—*1. Is spasmodic constriction of the coronary arteries due to vagal or sympathetic stimuli? 2. By what fibers, sympathetic or vagal, are pain impulses transmitted from the heart? 3. Where do these impulses originate? 4. The pain of acute coronary arterial obstruction is frequently described as beneath the sternum. Please describe the mechanism of its apparent location in this area, as substernally there apparently are no sensory nerve endings.*

R. J. Behan, M.D., Pittsburgh.

ANSWER.—1. This question has not been conclusively decided, because experimental evidence has been contradictory. There is good evidence that the sympathetic nerves are vasoconstrictors, since vagal stimulation causes vasodilatation; however, majority opinion holds that adrenergic impulses via the sympathetics are vasodilators. According to this latter view, cholinergic vasoconstrictor fibers are contained within both sympathetic and vagal nerves.

2. Most pain impulses are probably transmitted via the sympathetic cardiac nerves. Some, however, may be transmitted along the vagi. Most of these pain fibers are actually somatic visceral nerves, running with sympathetic nerves, including both cervical and thoracic cardiac branches, to the spinal cord.

3. Pain impulses probably originate from nonmyelinated endings in either muscle fibers, the coronary arterial walls, or nonmuscular structures, such as the pericardium.

4. Cardiac pain may be localized substernally due to "referral" of pain. Impulses are transmitted from the heart via the cardiac nerves to the same spinal segment as somatic pain fibers from the thoracic wall, including the sternum. There is no general agreement as to why certain somatic regions within a spinal segment are usually singled out or by what mechanism such "referral" occurs, either on the spinal or the cortical level.

LUPUS ERYTHEMATOSUS AND PREGNANCY

To the Editor:—*A 25-year-old white para 1 gravida 2 was first seen on Sept. 27, 1947, two months gravid, with a three year history of lupus erythematosus disseminatus. Antenatal serological studies showed a 4+ reaction to the Kolmer test, with a quantitative titer of 1:5 (VDRL [Venereal Disease Regional Laboratory] antigen). Results of serologic studies of a previous child (male, 3 years old) and the patient's husband, parents, and two sisters were normal. The patient was treated with penicillin, 300,000 units twice a day for 13 days, and bismuth, once weekly for 6 weeks, with no reversal in the results of the serological tests. She was delivered four weeks early of a 6 lb. 5 oz. (2,862 gm.) apparently normal male infant. Results of the cord Wassermann and serological tests of the child at 3 months of age were normal. When he was 6 months old it was apparent that the child, now 4 years old, was mentally retarded. The mother's reaction to the Kolmer test is still 4+, with a quantiative titer of 1:10 to 1:5 (VDRL antigen). At six months postpartum, she was given a spinal fluid examination, which was normal in all respects. During the past two years, there has been a flare-up in the lesions of lupus erythematosus. The patient is now six weeks gravid and is concerned about the lack of a diagnosis and the possibility of having another mentally retarded child. 1. Would lupus erythematosus cause the serologic test results described? 2. Should the patient receive antisyphilitic therapy, and, if so, what kind? She received one course of 7,800,000 units of penicillin with bismuth and another, two years later, of 15,000,000 units of penicillin. 3. What assurance can be given against the possibility of another abnormal child?*

M.D., New York.

Answer.—1. In patients with systemic lupus erythematosus, the serologic test of the blood might give a positive reaction, especially if examination of the blood serum reveals an abnormal albumin-globulin ratio. 2. The patient does not require more antisyphilitic treatment. 3. It is impossible to give firm assurance of a normal pregnancy and child. Ellis and Bereston (Lupus Erythematosus Associated with Pregnancy and Menopause, *A. M. A. Arch. Dermat. & Syph.* **65**:170 [Feb.] 1952) recently concluded that "when accompanied by acute disseminated lupus erythematosus pregnancy may result in 30 per cent fetal mortality . . . in pregnancy accompanied by subacute lupus erythematosus there was 46 per cent fetal mortality . . . in the presence of chronic discoid lupus erythematosus no consistent effects on the mother or child were noted." No mention was made of the effect of the disease on delayed defects of development in the child.

MASTURBATION IN CHILDREN

To the Editor:—*A 7-year-old girl recently began to masturbate. Please tell me what advice to give her parents.*

M.D., Pennsylvania.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—Early interest in sex is a natural part of the process of growing up and occurs in all wholesome children. According to Spock, there are different causes of masturbation at various ages. Children aged 3 to 6 are physically affectionate; they are interested in each others' bodies and have the desire to see and touch them. If the small child is discovered in sex play, alone or with others, it is better to check the impulse to act in a shocked or angry manner. One can cheerfully suggest some other game. After age 6, if a child seems to be generally happy and successful, doing well in school, and getting along with his family and friends, the parents can be assured that it is nothing to worry about. If the child is interested only in himself, unable to enjoy friendships, or is doing poorly in school, it is time to help with the child's problem. Frequent masturbation or preoccupation with it, in an unhappy child, is only one symptom of a larger problem.

At any age, masturbation may be a sign of tenseness and worry. A persistent case deserves a careful study of the child's life, which should include an inquiry into his relationships with other persons and his sources of satisfaction and dissatisfaction; he is usually a tense or worried child. These children are not nervous because they are masturbating; they are masturbating because they are nervous. The aim is to find the cause of the tenseness instead of attacking the masturbation directly. Often it is possible to make constructive adjustments that will remove tensions, worries, and dissatisfactions. Mechanical restraints and punishment accomplish little; the substitution of happy play and the avoidance of solitude usually are efficacious. The old idea that masturbation will cause physical and mental deterioration is erroneous and dangerous. Excessive masturbation is only one symptom of the abnormal nervous condition.

Answer.—Nearly everyone after the age of 4 or 5 explores various forms of masturbatory activity, continues to do so through adolescence, and occasionally resorts to autoeroticism in later years. Harm from moderate indulgence in such practices results only when parents or others, by excessive watchfulness, threats, or condemnation, render the child so guilty and fearful that he feels depraved and rejected; under such circumstances emotional conflicts will be engendered that may seriously impair adult sexual and social adjustments. The parents may be advised to deal with their daughter's normally awakening sexuality not by severe warnings or punishments but by giving her more love and attention when she engages in other pursuits and by encouraging healthy play activities with other children. Her bedtime hours may be timed so that she falls asleep readily, and quick relaxation and drowsiness may be promoted by a relaxing bath, warm milk, a soothing bedtime story, or, occasionally, a small dose of a mild sedative (0.10 gm. of chloral hydrate or 0.015 gm. of phenobarbital) when necessary. Now or later, the child should be instructed about her sexual functions in as calm, objective, and off-hand a manner as is used in discussing her breathing or elimination; avoidance or embarrassment in discussing sexual matters serves only to stimulate special interest and secretive indulgence. In any case, a certain amount of normal masturbatory activity will occur but should not be taken as seriously deviant or alarming. A sensible discussion of this topic will be found in L. Kanner's "Child Psychiatry" (ed. 2, Springfield, Ill., Charles C Thomas, Publisher, 1948, pp. 560-566); the parents of the child may be directly referred to this source if it is felt that authoritative confirmation of the physician's advice is needed.

"FREON" POISONING

To the Editor:—*What are the symptoms, clinical indications and treatment of "freon" and methyl chloride poisoning? Refrigeration mechanics have been advised that this is responsible for pulmonary disturbance.*

M.D., Oklahoma.

Answer.—"Freon" is the trade name for a series of five or more chemically related refrigerants. The best known is "freon 12" (dichlorodifluoromethane). This substance is substantially harmless, being a simple asphyxiant. Only as it displaces oxygen does it constitute a danger. However, on gross heating there are decomposition products that may not be constant but that may be injurious. The term "'freon' poisoning" is hardly justified. Methyl chloride is definitely an active, toxic agent. The fair number of disturbances attributed to it have resulted chiefly from its narcotic action. The pure substance is without warning properties, and some commercial brands contain a low percentage of warning ingredients of acrolein. The action of such a disturbing warning agent frequently is attributed to methyl chloride itself. In addition to the narcotic action, methyl chloride may lead, possibly on a chronic exposure basis, to damage to the cardiovascular, renal, nervous, and hepatic systems. The high degree of prospective damage from methyl chloride is reflected in the acceptance in some quarters of 50 ppm as the tolerable concentration limit. The nature of damage from methyl chloride, apart from its anesthetic properties, is not well established. This substance decomposes into wood alcohol, formaldehyde or formic acid, and formates. For practical purposes, methyl chloride poisoning beyond the narcotic state should be managed as though it were methyl alcohol poisoning. In any event, neither "freon" nor methyl chloride may be expected to provoke pulmonary disturbance as a major manifestation.

IMMUNIZATION OF BABIES

To the Editor:—*Requests for immunization of babies against typhoid, cholera, and other diseases are being made by families who are leaving the United States and going overseas. How early may these immunization treatments be given, and how much vaccine should be given an infant, especially of typhoid, typhus, and cholera vaccines?*

Alfred H. Hatchcock, M.D., Fayetteville, Ark.

Answer.—All persons leaving the United States, including infants, regardless of age, should be immunized against smallpox. All, regardless of age, may be immunized against yellow fever and should be if going to or through a country in which the health authority requires such immunization. The full dose of smallpox and yellow fever vaccines as recommended on the package label should be given to patients of all ages. Single or combined antigen preparations are recommended for immunization against diphtheria, tetanus, and pertussis. The dose should be as recommended on the package label. Immunization with typhoid-paratyphoid, cholera, plague, and typhus vaccines is recommended if advised by the agency, governmental or otherwise, under whose auspices the travel is undertaken or if required by the health authority of the foreign country concerned. The dose of these vaccines should be reduced for infants and children. An acceptable rule is to reduce the volume of each injection recommended for the adult by dividing the weight of the child by 100 and using this fraction of the adult dose, e. g., for a 25 lb. child, 25/100 (one-fourth) of the adult dose should be used. Immunization against diphtheria, tetanus, and pertussis may be begun as early as the age of 2 months. All immunizations needed should be completed by age 6 months.

IMPOTENCE AND DIABETES

To the Editor:—*A 42-year-old male diabetic has been unable to get an erection for the past year. What may be the cause? Would testosterone help him?*

Samuel S. Schept, M.D., Union City, N. J.

Answer.—Inability to obtain an erection is a complaint not infrequently made by men with diabetes of 10 or more years' duration. There are no reliable data available as to whether this complaint is commoner in diabetic than in nondiabetic males. In this connection, distinction must be made between the symptom mentioned and basic infertility due to impaired spermatogenesis. As to cause, if the condition occurs after diabetes of long duration, the influence of premature vascular disease and of neuropathy must be considered. Psychological factors are often of great importance, as they are in nondiabetics.

Testosterone in dosage of 5 to 25 mg. intramuscularly at two to five day intervals has been recommended, but its value is equivocal. Other forms of treatment recommended but also of uncertain value are the use of thyroid extract in dosage of 60 to 180 mg. daily, the instillation of 5 cc. of 0.5% silver nitrate solution into the prostatic urethra weekly, and a course of prostatic massage. Careful and continuous control of the diabetic condition, an adequate diet, the avoidance of excessive physical and emotional fatigue, and psychotherapy are indicated.

DISCHARGE ABOVE NIPPLE AT MENSTRUAL PERIODS

To the Editor:—*A 15-year-old girl had a small amount of dark red-brown discharge from a gland of Montgomery above the left nipple at the time of her last two menstrual periods. The orifice of this gland is slightly more prominent than those of the others, but there is no palpable tumor beneath it. Can this be dismissed as vicarious menstruation, or is biopsy indicated?*

M.D., Michigan.

Answer.—It is not yet settled whether Montgomery follicles are modified milk glands or sebaceous glands. The situation described is unusual. The diagnosis of vicarious menstruation seems unlikely, although the condition is probably benign. The simplest solution would be to excise the Montgomery follicle in question and make a careful microscopic examination of the specimen.

EXTRASYSTOLES

To the Editor:—*A 29-year-old white woman has frequent premature ventricular contractions with long runs of bigeminal and trigeminal beats. A thorough work up has disclosed no organic heart disease, and there is no history of rheumatic fever. By eliminating tobacco and caffeine, a normal sinus rhythm was restored and the electrocardiogram was normal; however, when the patient drinks coffee or cola beverages or smokes one or two cigarettes a day her premature ventricular contractions return. She is willing to tolerate the extrasystoles if she can be assured that no serious consequences will ensue. Are the premature ventricular contractions entirely innocuous and is restriction of caffeine and tobacco unnecessary?*

C. K. Holland, M.D., McAlester, Okla.

Answer.—Extrasystoles are not harmful in an otherwise healthy person unless they cause symptoms or apprehension. If they do so in this patient, it is sensible for her to omit coffee, cola beverages, and tobacco. There is no real danger of serious consequences, such as ventricular tachycardia or ventricular fibrillation, and although the circulation is not perfect during such arrhythmia, it is adequate.

UNCINARIASIS IN INFANTS

To the Editor:—*I see many infants from 10 to 15 months of age who have stools positive for Uncinaria. What is the best treatment for uncinariasis in these cases?*

Angel Diaz Montanez, M.D., Puerto Rico.

Answer.—The following treatment for uncinariasis is recommended by Dr. W. C. Davison. At 4 p. m. the patient is given 15 gm. of magnesium sulfate in 60 cc. of water, and the same evening, he is given a light supper. He is given no breakfast the next morning, but early in the morning he is given a hard gelatin capsule of tetrachlorethylene. The maximum total dose given of tetrachlorethylene is 0.2 cc. per year of the patient's age up to a limit of 4 cc.; two hours later, 15 gm. of magnesium sulfate are given in 60 cc. of water (the dose of magnesium sulfate must be regulated for the age and weight of the patient), and no lunch is given. After the bowels have moved, ingestion of food can be resumed. The whole amount of tetrachlorethylene may also be given in one dose early in the morning, either followed immediately by the magnesium sulfate purge or taken with the purge. The patient may eat as soon as the purge has acted. If the child is too small to take the capsule, it may be broken and placed on a lump of sugar. Reactions to tetrachlorethylene are rare, but faintness, dizziness, drowsiness, or even short coma may occur; bedrest is unnecessary. If Uncinaria eggs are found in the stool two weeks after the first treatment, the course may be repeated. The associated anemia usually requires iron therapy.

RECURRENT KIDNEY STONES

To the Editor:—*Is there any prophylaxis for recurrent formation of calcium oxalate stones of the kidneys? If a diet is advisable, what foods contain oxalic acid? Should milk and milk products be avoided? What is the consensus concerning the use of hyaluronidase?*

M.D., Ohio.

Answer.—The prophylaxis of recurring calcium oxalate stones in the kidney is unfortunately more uncertain than that of stones of other chemical composition; however, it is generally agreed that the intake of such foods as tomatoes, spinach, fruit, tea, and cocoa should be limited or avoided. The use of dairy products as well as a large amount of fluids is encouraged. It is of interest that the majority of stones caused by parathyroid disease are predominantly of calcium oxalate formation. Careful laboratory and clinical study should be made to exclude this possibility. If oxalate stones recur after renal operation, the possibility of one of multiple stones having been overlooked at the time of operation must be considered. Although hyaluronidase promises to be a valuable therapeutic agent in preventing formation of recurring stones, this use of the drug is still in an experimental stage. It might be tried, since it has been shown that there is an increase of colloidal activity following its injection in a high percentage of cases.

REPEATED RESPIRATORY TRACT INFECTIONS

To the Editor:—*An 8-year-old girl has had repeated upper respiratory tract infections for three years during the fall, winter, and spring months, which almost without exception have rapidly developed into bronchopneumonia, despite prompt antibiotic therapy. Repeated chest roentgenograms have been negative except when pneumonia is present, and then only the pneumonic process is evident. Vollmer patch tests are negative, and blood counts and urinalyses are normal. Between infections the chest is clear and the child appears healthy except for being slightly underweight and having some pallor of skin and mucous membranes. The appetite is normal and the diet well balanced. The tonsils and adenoids were removed at the age of 5 years. There is no evidence of chronic focus of infection in the upper respiratory tract or elsewhere. The child was given "pertussis mixed UBA67" bacterial antigen in maximal tolerated doses (0.25 cc.) every two weeks for three months, but there has been no improvement. The past history is negative except for uncomplicated measles at age 2 years. Since the child is out of school more than half of the time we have considered placing her on daily small doses of oral penicillin during the school year. Suggestions for treatment would be appreciated.*

R. G. Wetterstroem, M.D., Northville, Mich.

Answer.—On the basis of the case history including the physical and laboratory examinations there should be a strong suspicion that one or more allergic factors are primarily responsible for the repeated upper respiratory attacks. Therefore, it would seem advisable to obtain a series of sensitivity tests. It might also be helpful if cultures from the nasopharynx were secured during a period of illness.

POLIOMYELITIS AND CEREBRAL PALSY

To the Editor:—*Has acute anterior poliomyelitis ever been known to attack children with cerebral palsy?*

Walter A. Landry, M.D., Chester, Pa.

Answer.—No instance of poliomyelitis in a person afflicted with cerebral palsy has been reported. Routine official reports on poliomyelitis do not, however, indicate other ailments that may have been associated with it. The combination of poliomyelitis and cerebral palsy, if it were purely a matter of chance, would be rare, since both are diseases of relatively low incidence.

GENITAL TUBERCULOSIS

To the Editor:—*In Queries and Minor Notes in* The Journal *Aug. 16, 1952, page 1513, the answer states, "Gynecologists are anything but enthusiastic about the results of tubal plastic procedures, even for nontuberculous salpingitis. It is difficult to believe that anyone would recommend these measures for the tuberculous variety, in the presence of which pregnancy is notoriously rare, not merely because of the frequency with which occlusion occurs but also because of the diseased tubal wall and consequent impairment of its physiological function. This would apply whether the procedure involved is salpingostomy, tubal resection and tubouterine implantation, or cornual ovarian implantation."*

This is a rather sweeping statement. In view of research done by us, our exhibits at the A. M. A. conventions in June and December, 1951, and the Pennsylvania Medical Society Convention in 1951, and our work reported in Fertility and Sterility (**1**:435-442 [Sept.] 1950), *we believe the chances of success in tubal plastic operations with the use of polyethylene tubing are excellent. This is shown by the many reports by workers using this procedure of pregnancies occurring after this operation.*

The answer gives the impression not only that tubal plastic work in genital tuberculosis is of little value but that any tubal plastic operation is of little value. We think this should be corrected.

Amos S. Wainer, M.D.
Mario A. Castallo, M.D.
1621 Spruce St., Philadelphia 3.

UNDESCENDED TESTES IN YOUNG BOY

To the Editor:—*In* The Journal *August 9, 1952 (page 1431), in Queries and Minor Notes was a question regarding the treatment of a 3-year-old boy with bilateral undescended testicles.*

Judging from my own experience and from discussion with my pediatric colleagues, I would differ with the reply to this question. It is agreed that the sooner the testicle is in the scrotum the better for the patient; however, this does not mean that immediate surgical intervention is the rule in 3-year-old children with undescended testicles. The only possible indication for operation in a youngster of this age would be the presence of a complicating incapacitating hernia.

The use of glandular treatment, whether it be chorionic gonadotropin or testosterone propionate, should be employed with great caution and with full knowledge that probably nothing would be accomplished. In fact, the chief value of this treatment has been its mollifying effect on anxious parents who wish to have "something done" for the youngster. The actual medical value of such treatment has been that the desired result has occasionally occurred and that it has produced some increase in growth of the child so the structures were more easily handled at the time of operation. The answer was correct in advising that great care be taken in administration of these powerful hormones and that a long course should not be allowed because of the dangerous side-effects.

The answer advised immediate surgical intervention if the testicles have not descended after eight weeks of glandular therapy. This is not the general consensus. In this area we feel that the optimum time for operation is just before puberty. Even if puberty has begun, no harm is done if the testicle is transplanted promptly. The great advantage of this conservative attitude in the surgical treatment of these patients is that adequate time has been given for the spontaneous descent of the testicles and that at the time of operation the structures are large enough and the blood vessels well enough developed to permit a safe and relatively easy transplantation, with a minimum loss of testicles due to ischemia produced by the eager surgeon.

Robert J. Prentiss, M.D.
3415 6th Ave., San Diego 3, Calif.

ELECTRIC SHOCK TREATMENT

To the Editor:—*There was a question in* The Journal *Aug. 9, 1952, page 1430, about whether there was a later type of electric shock treatment machine that produced less violent reactions than do the older types. The answer to this question failed to mention the use of modern, low current, electroshock machines, such as the Reiter apparatus. These low current machines produce convulsions with small currents of about 20 ma., as contrasted with 400 ma. employed in the older type of machine, such as that described in the answer (Lemere, F.: Low Current Electroconvulsive Therapy,* Northwest Med. **49**:260 [April] 1950). *The answer stressed the use of tubocurarine chloride, which many have abandoned as being more dangerous than the shock treatment itself. By the use of low currents, memory disturbances are avoided, the occurrence of fractures is extremely rare, and psychotherapy can be given continuously with the shock treatments. The fear engendered in some patients by shock treatment can be eliminated by intravenous administration of thiopental sodium before the treatment. In this way, the patient has no memory of the shock treatment, and the convulsions are reduced in intensity.*

Shock treatments are helpful for depressions, and some former objections based on violent or fear producing reactions are eliminated by the newer techniques, with the result that this treatment has become more widely acceptable for the relief of patients with these distressing conditions.

Frederick Lemere, M.D.
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